CITY OF RIVERSIDE
PUBLIC UTILITIES
WATER DIVISION

CWD STANDARD DRAWINGS, 2004

CITY OF
RIVERSIDE
PUBLIC UTILITIES

MARCH 2004

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CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL PLAN LAYOUT
SHT 1 OF 2

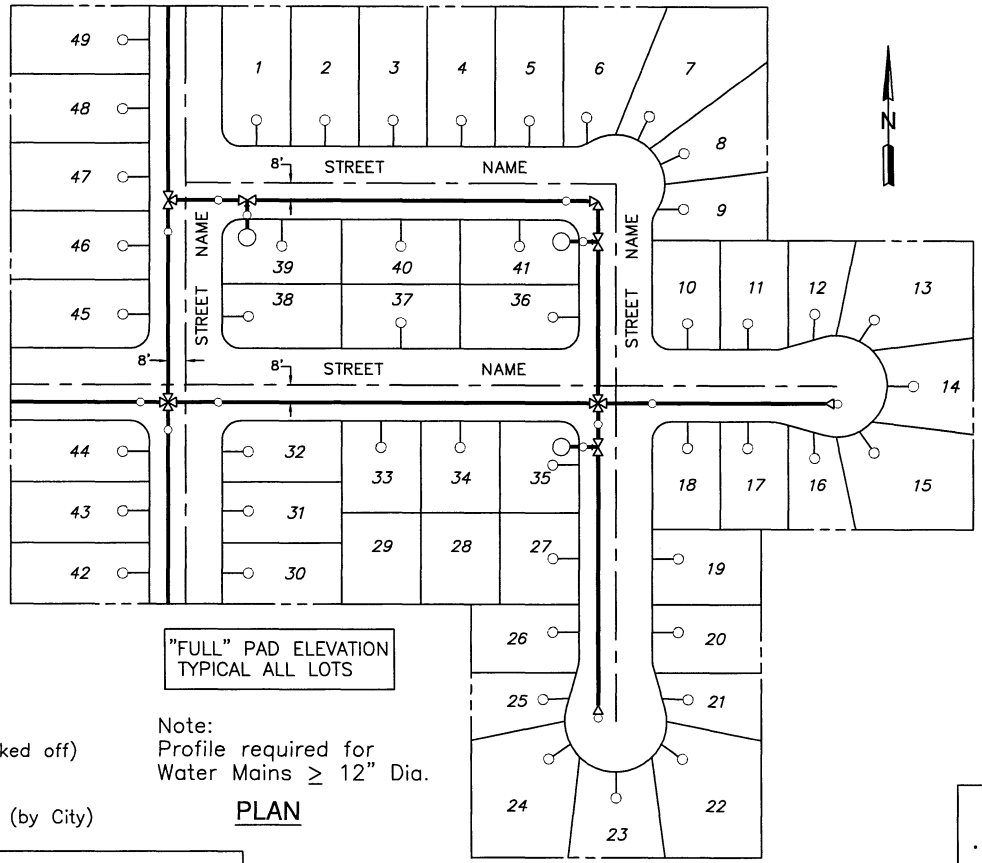
DATE: MAR 2004

CWD-010-1

0	DRAWN	DATE	CHECK	APPROV.	1	DRAWN	DATE	CHECK	APPROV.	2	DRAWN	DATE	CHECK	APPROV.	3	DRAWN	DATE	CHECK	APPROV.
	WEF	03-04																	

LEGEND

- New Ductile Iron Pipe
- Tract Boundary
- Tap Sleeve w/Tap GV
- Gate Valve
- New Cap w/Blow-Off
- New Ell
- New Tee
- New Cross
- New FH
- SIZE & TYPE — Exist Pipe
- Exist Service
- Exist FH
- Exist Valve
- E — Electrical UG
- ST LT — St Light Conduit
- T — Telephone UG
- S — Sewer
- G — Gas
- SD — Storm Drain
- New Service
- (L) — New Service (to be locked off)
- (T) — New Service (by City)
- LS — New Landscape Service (by City)



"FULL" PAD ELEVATION
TYPICAL ALL LOTS

Note:
Profile required for
Water Mains ≥ 12" Dia.

PLAN

GENERAL NOTES

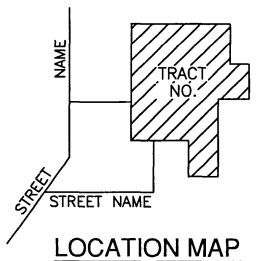
1.) GENERAL NOTES TO BE SUBMITTED AT FIRST PLAN CHECK

2.) SCALE OF THE DRAWINGS SHALL BE 1" = 40'.

3.) SIZE OF DRAWINGS SHALL BE "SIZE 5" – 22" X 34" OR 24" X 36".

4.) REFERENCE SECTION 2-3.

5.) CAD REFERENCE, EXAMPLE TITLE SHEET: G:\WATER\ACAD\COMMON\Drafting Stds\CITY14.dwg



LOCATION MAP
(Include Index Map if more than 1 sheet)

e.g.:
- Section View of Undercrossing
- Section View of Overcrossing
- System Connection

DETAILS
(As Required)

BILL OF MATERIALS

SYMBOL	ITEM	MAIN	FH	SERV	BEARING AREA

PIPE CURVE DATA

	R	△	L	T
(1)				
(2)				
(3)				

TWO DAYS BEFORE YOU DIG
CALL Underground Service Alert
TOLL FREE:1-800-227-2600

BENCH MARK:

DEVELOPER NAME:

NOTE: THIS SYSTEM SERVED BY_____ZONE

STANDARD CITY OF RIVERSIDE PUBLIC UTILITIES TITLE BLOCK (NTS)

ENGINEERS BLOCK
SHALL INCLUDE:
Address
Telephone No.
Engineer _____RCE#_____

ENGINEERS SEAL

CITY OF RIVERSIDE
WATER SYSTEM

APPROVED BY _____ DATE
VOID ONE YEAR FROM THIS DATE

MARK	REVISION	APPR	DATE

TITLE

SCALE	DRAWN
DATE	CHECKED
JOB NO.	PERMIT PLUS NO.
CADME PG	JL KEY:

CITY OF RIVERSIDE
DEPARTMENT OF PUBLIC UTILITIES

W DIV.

DRAWING NO.
SHT X OF X

	DRAWN	DATE	CHECK	APPROV.
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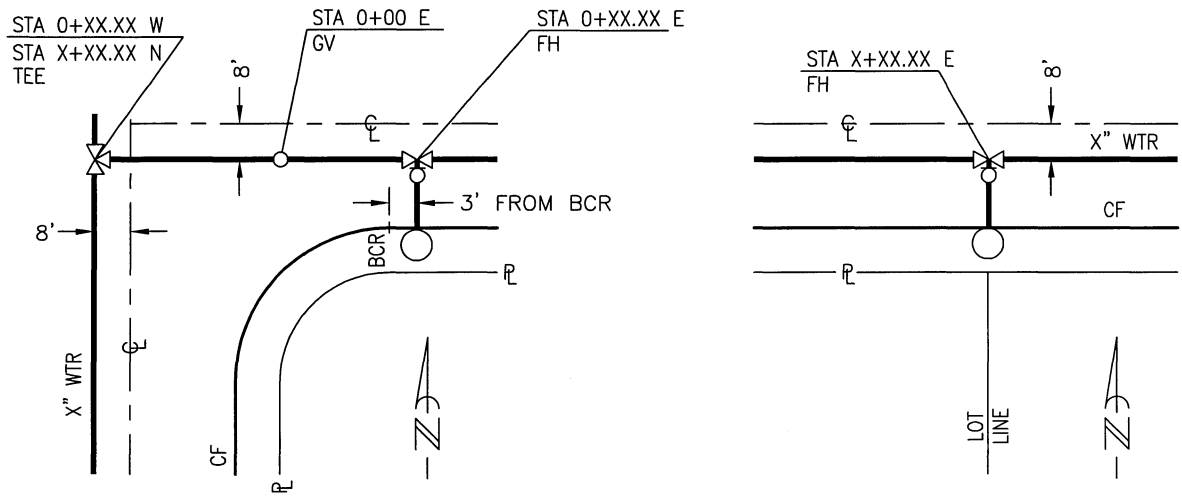
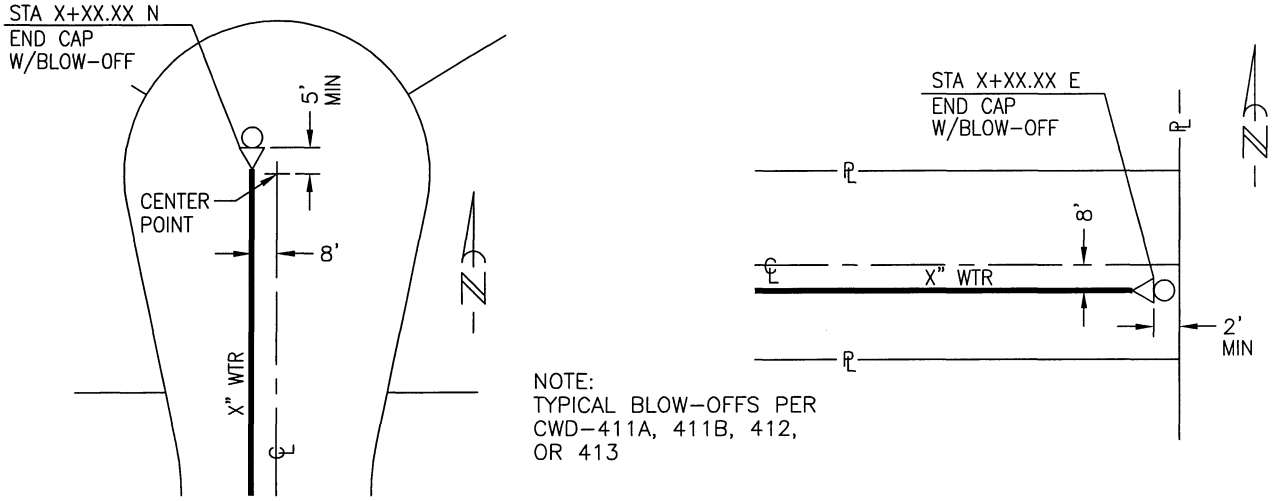


INTERSECTIONS

FIRE HYDRANT LOCATIONS

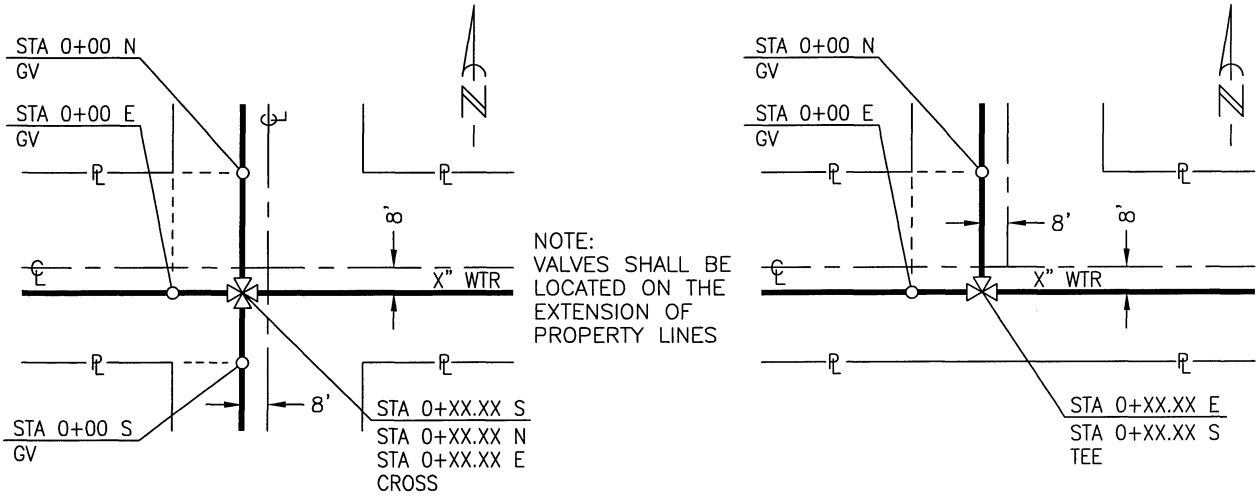
LOT LINES



CUL-DE-SAC

END OF MAIN

DEAD-END



FOUR-WAY

VALVE LOCATION

THREE-WAY

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL PLAN LAYOUT
SHT 2 OF 2

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-010-2

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INSTALLATION OF NEW SANITARY SEWER

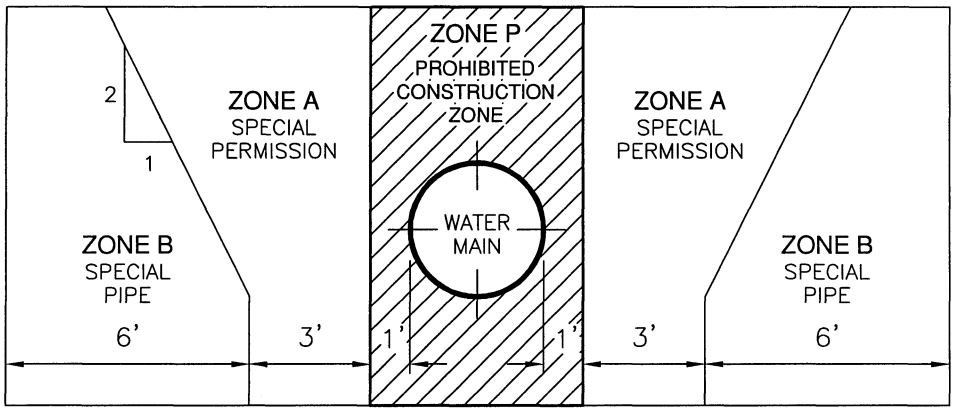

FIGURE 1 - PARALLEL CONSTRUCTION

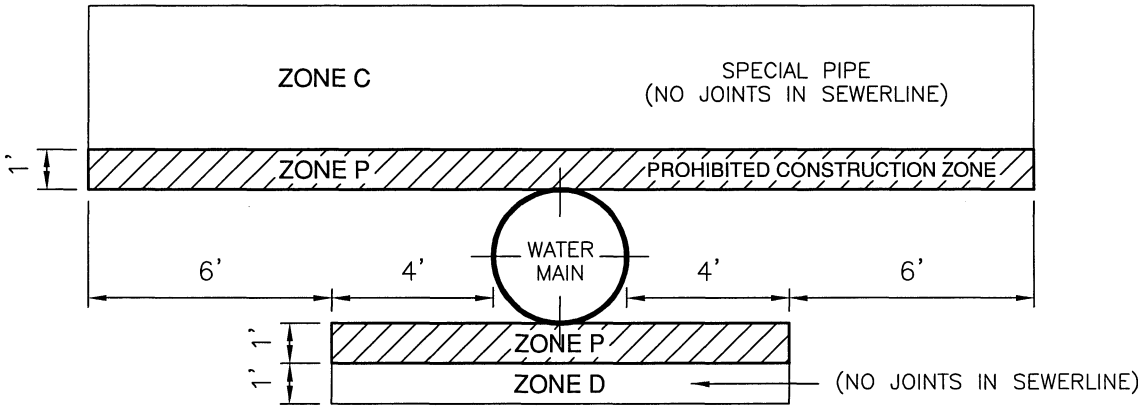

FIGURE 2 - CROSSINGS

MINIMUM SEPARATION REQUIREMENTS FOR WATER MAIN AND SEWER LINE CONSTRUCTION PER SECTION 64572 (WATER MAIN SEPARATION, CALIFORNIA WATERWORKS STANDARDS, TITLE 22, CALIFORNIA CODE OF REGULATIONS.)

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	WATER MAIN AND SANITARY SEWER SEPARATION CASE 1
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004 — CWD-015-1

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INSTALLATION OF NEW WATER MAIN

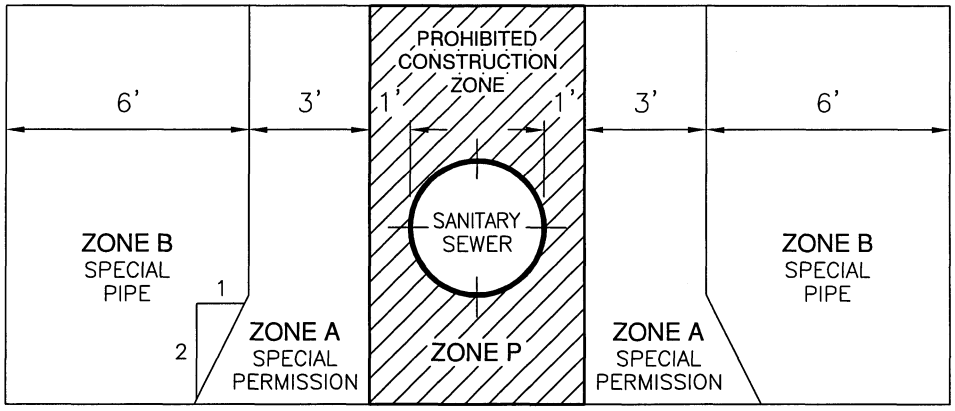

FIGURE 1 - PARALLEL CONSTRUCTION

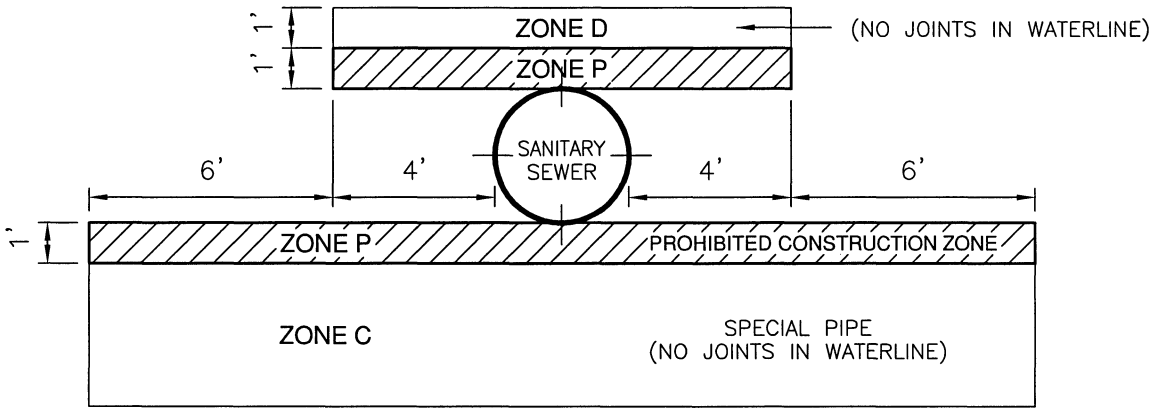

FIGURE 2 - CROSSINGS

NEW WATER MAIN - EXISTING SANITARY SEWERLINE

MINIMUM SEPARATION REQUIREMENTS FOR WATER MAIN AND SEWERLINE CONSTRUCTION PER SECTION 64572 (WATER MAIN SEPARATION, CALIFORNIA WATERWORKS STANDARDS, TITLE 22, CALIFORNIA CODE OF REGULATIONS.)

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	WATER MAIN AND SANITARY SEWER SEPARATION CASE 2
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004 — CWD-015-2

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NOTES AND DEFINITIONS

1. HEALTH AGENCY -- THE DEPARTMENT OF HEALTH SERVICES. FOR THOSE WATER SYSTEMS SUPPLYING FEWER THAN 200 SERVICE CONNECTIONS, THE LOCAL HEALTH OFFICER SHALL ACT FOR THE DEPARTMENT OF HEALTH SERVICES.

2. WATER SUPPLIER -- "PERSON OPERATING A PUBLIC WATER SYSTEM" OR "SUPPLIER OF WATER" MEANS ANY PERSON WHO OWNS OR OPERATES A PUBLIC WATER SYSTEM.

3. LOW HEAD WATER MAIN -- ANY WATER MAIN WHICH HAS A PRESSURE OF FIVE PSI (POUNDS PER SQUARE INCH) OR LESS AT ANY TIME AT ANY POINT IN THE MAIN.

4. DIMENSIONS ARE FROM THE OUTSIDE OF WATER MAIN TO THE OUTSIDE OF SANITARY SEWER LINE OR MANHOLE.

5. COMPRESSION JOINT -- A PUSH-ON JOINT THAT SEALS BY MEANS OF THE COMPRESSION OF A RUBBER RING OR GASKET BETWEEN THE PIPE AND A BELL OR COUPLING.

6. MECHANICAL JOINTS -- BOLTED JOINTS.

7. RATED WORKING WATER PRESSURE OR PRESSURE CLASS -- A PIPE CLASSIFICATION SYSTEM BASED UPON INTERNAL WORKING PRESSURE OF THE FLUID IN THE PIPE, TYPE OF PIPE MATERIAL, AND THE THICKNESS OF THE PIPE WALL.

8. FUSED JOINT -- THE JOINING OF SECTOINS OF PIPE USING THERMAL OR CHEMICAL BONDING PROCESSES.

9. SLEEVE -- A PROTECTIVE TUBE OF STEEL WITH A WALL THICKNESS OF NOT LESS THAN ONE-FOURTH INCH INTO WHICH A PIPE IS INSERTED.

10. GROUND WATER -- SUBSURFACE WATER FOUND IN THE PART OF THE GROUND THAT IS WHOLLY SATURATED.

11. HOUSE LATERAL -- A SANITARY SEWER CONNECTING THE HOUSE LATERAL DRAIN, BUILDING DRAIN, AND THE MAIN SANITARY SEWERLINE.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	WATER MAIN AND SANITARY SEWER SEPARATION NOTES
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004 — CWD-015-3

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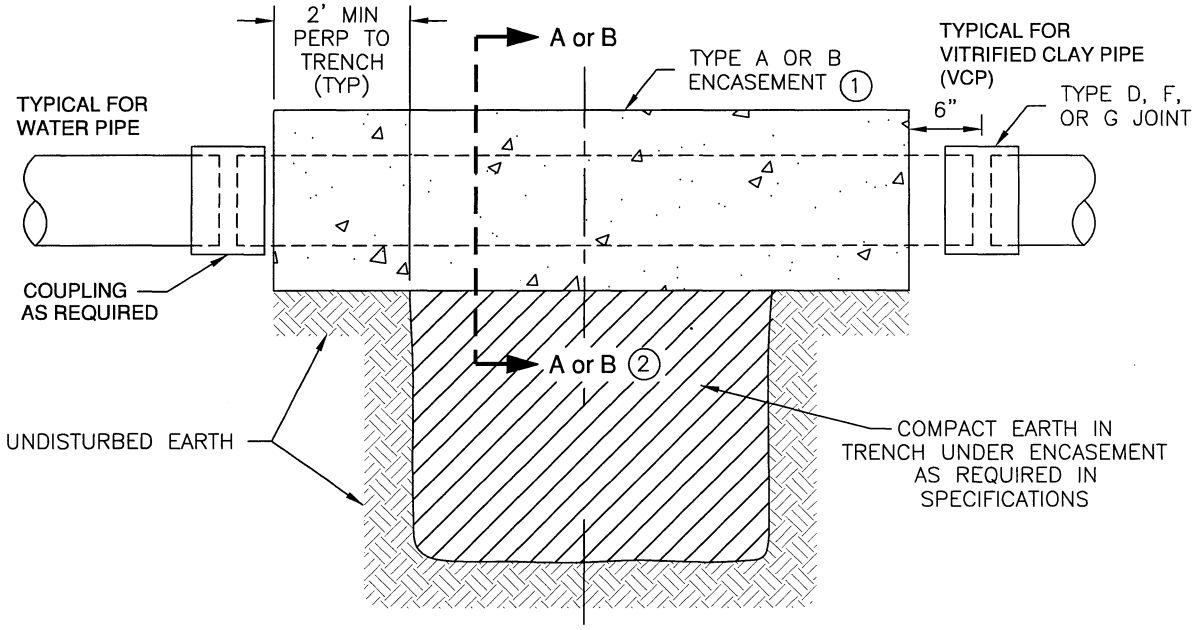


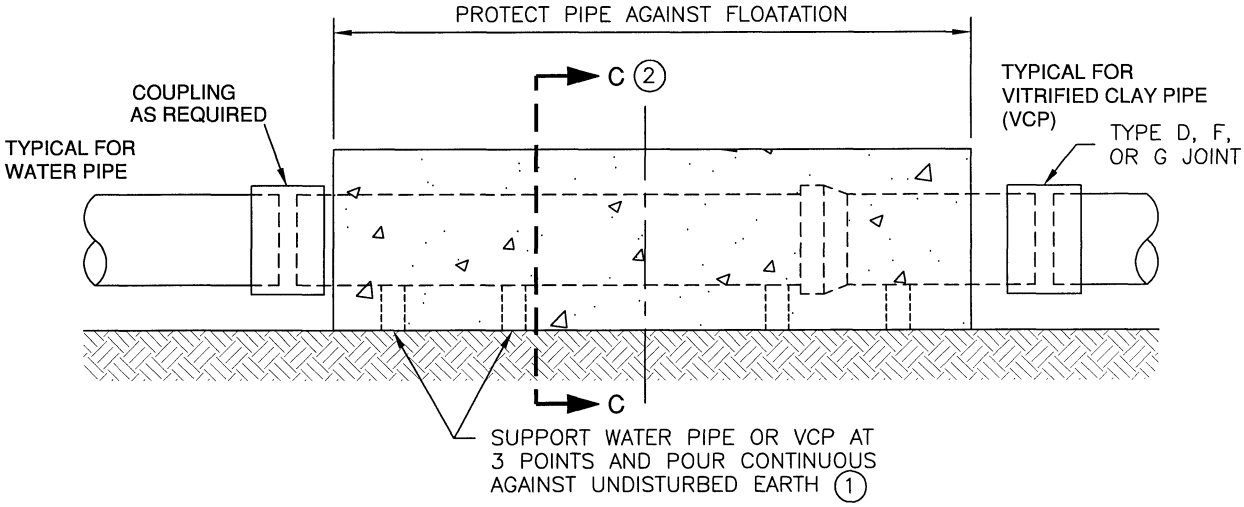
TYPE A OR B ENCASEMENT FOR WATER & SEWER

REQUIRED TO SPAN TRENCH, OR WHERE ENCASEMENT IS NOT POURED ON UNDISTURBED EARTH

NOTE:

(1) EXTEND MACHINED PIPE ENDS BEYOND ENCASEMENT

(2) SEE CWD-023-2 FOR CROSS-SECTION OF A, B, OR C ENCASEMENT DETAIL



TYPE C ENCASEMENT FOR WATER & SEWER

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	STRUCTURE INTERFERENCE TYPE A, B, OR C ENCASEMENT
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004 — CWD-023-1

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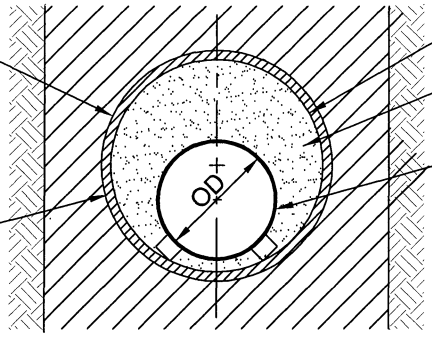
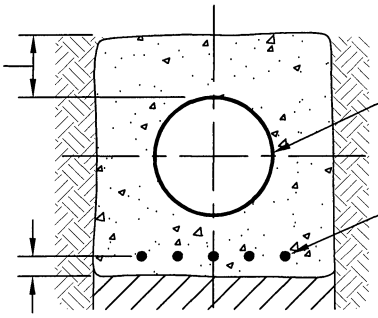
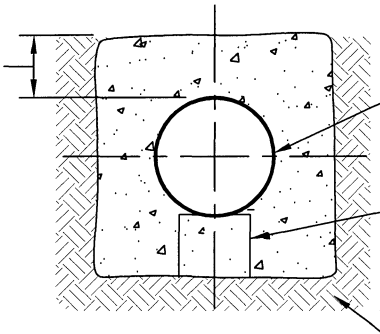
OD = OUTSIDE DIAMETER OF BELL, COLLAR, OR COUPLING.



TYPE A - PIPE CASING
SECTION A



TYPE B - REINFORCED ENCASEMENT
SECTION B



TYPE C - PLAIN ENCASEMENT
SECTION C

GENERAL NOTES

1.) ALL MATERIALS OF CONSTRUCTION SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION"

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	STRUCTURE INTERFERENCE ENCASEMENT SECTIONS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004	CWD-023-2

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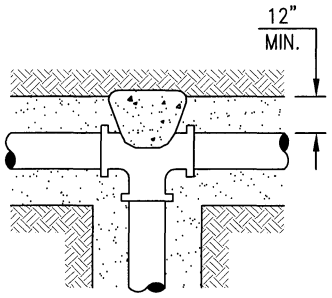

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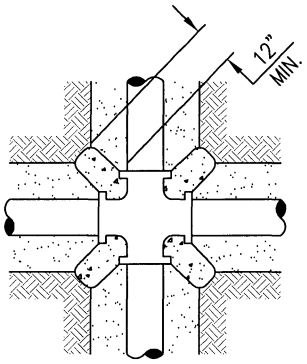
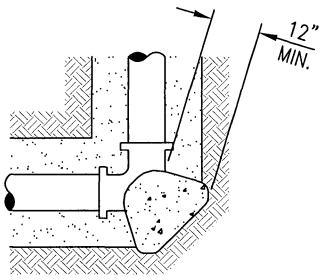
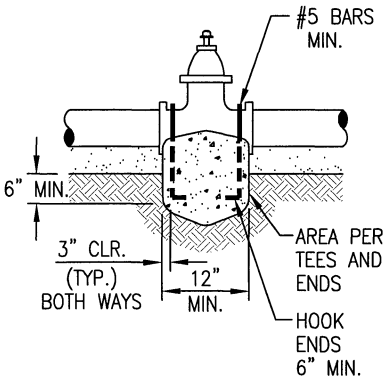


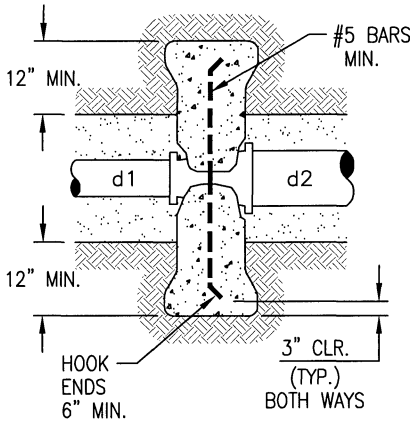
CROSS



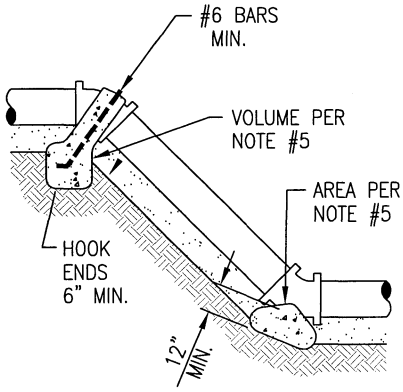
ELL



ANCHORAGE OF VALVE



REDUCER



VERTICAL P.I.

GUIDELINE

NOTES:

1.) ALL MATERIALS OF CONSTRUCTION SHALL CONFORM TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION".

2.) THRUST AND ANCHOR BLOCKS FOR D.I.P. AND M.L.&C. STEEL PIPE SHALL BE OF PCC 450-C-2000 CONCRETE AND SHALL BE POURED AGAINST UNDISTURBED SOIL. CONCRETE SHALL BE KEPT CLEAR OF THE BELL END OF FITTINGS FOR DUCTILE IRON PIPE.

3.) ENGINEERED-APPROVED RESTRAINED JOINTS MAY BE USED IN-LIEU OF THRUST BLOCKS.

4.) ANCHOR BLOCK FOR GATE VALVES SHALL BE KEYED A MINIMUM OF 12 INCHES INTO TRENCH WALL AND 6 INCHES INTO BOTTOM OF TRENCH.

5.) THE ENGINEER OF RECORD SHALL SIZE ALL THRUST BLOCKS ON THE BASIS OF THE SOIL PASSIVE PRESSURE.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

THRUST BLOCK DETAILS TYPICAL

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-030

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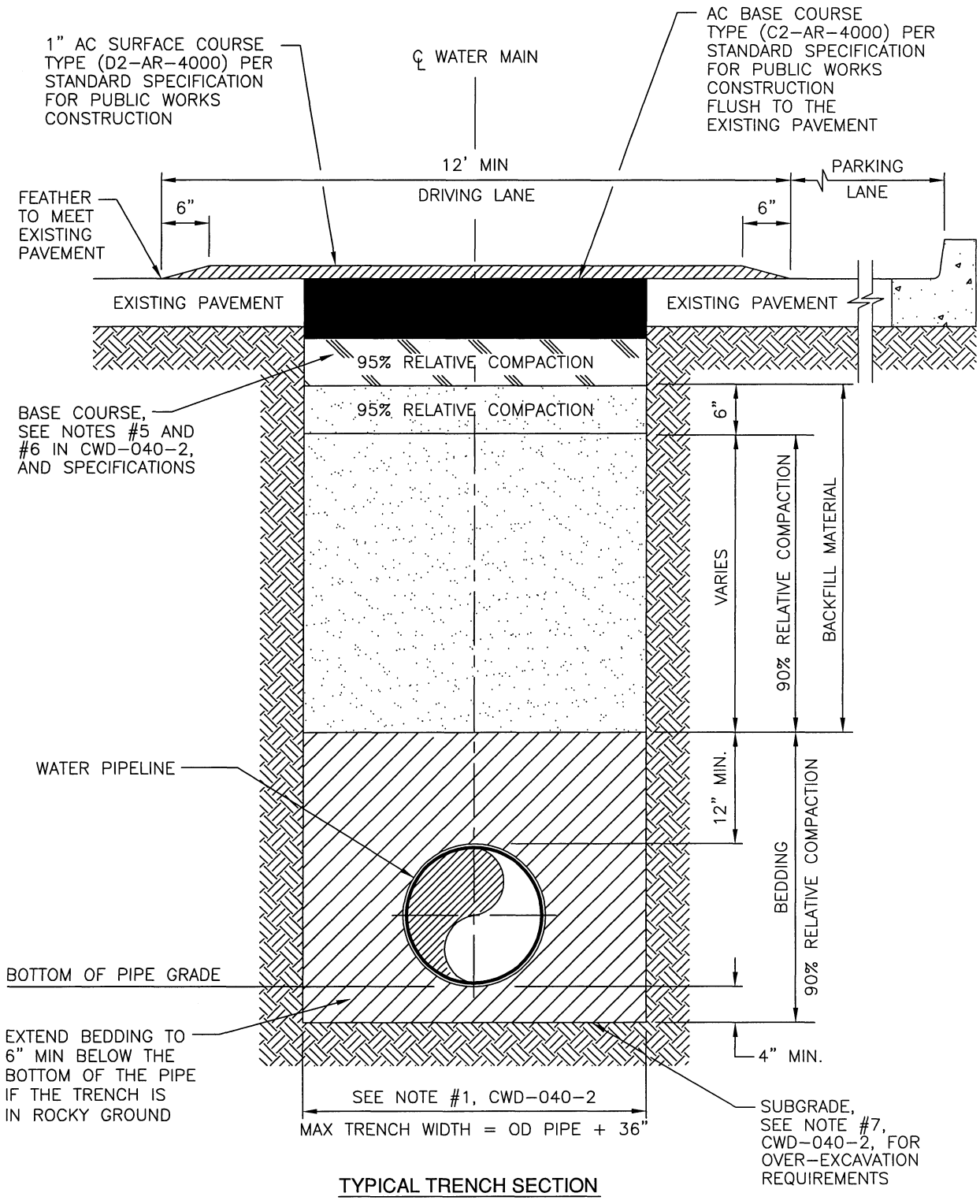

TYPICAL TRENCH SECTION

SEE CWD-040-2 FOR NOTES

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL PIPE TRENCH, BEDDING, BACKFILL AND PAVEMENT REQUIREMENTS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-040-1

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GENERAL NOTES:

1.) MINIMUM TRENCH WIDTH = OD + 12" FOR 4" TO 12" NOMINAL DIAMETER PIPE AND OD + 18" FOR GREATER THAN 12" NOMINAL DIAMETER PIPE.

2.) THE MATERIAL FOR BEDDING SHALL BE COHESIONLESS SANDY LOAM, SAND, OR SANDY GRAVEL MATERIAL OBTAINED FROM PROJECT EXCAVATION OR FROM APPROVED BORROW AREAS. THE BEDDING MATERIAL SHALL NOT CONTAIN ANY ROCKS OR OTHER MATERIAL DELETERIOUS TO THE PIPE.

3.) SAND BEDDING SHALL BE USED WHEN THE SAND EQUIVALENT OF THE NATIVE MATERIAL IS LESS THAN 30, PER ASTM D2419.

4.) FOR PAVED AND UNPAVED AREAS, THE COMPACTION OF BEDDING AND BACKFILL MATERIALS AND PAVEMENT REPLACEMENT SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION "GREEN BOOK" LATEST EDITION.

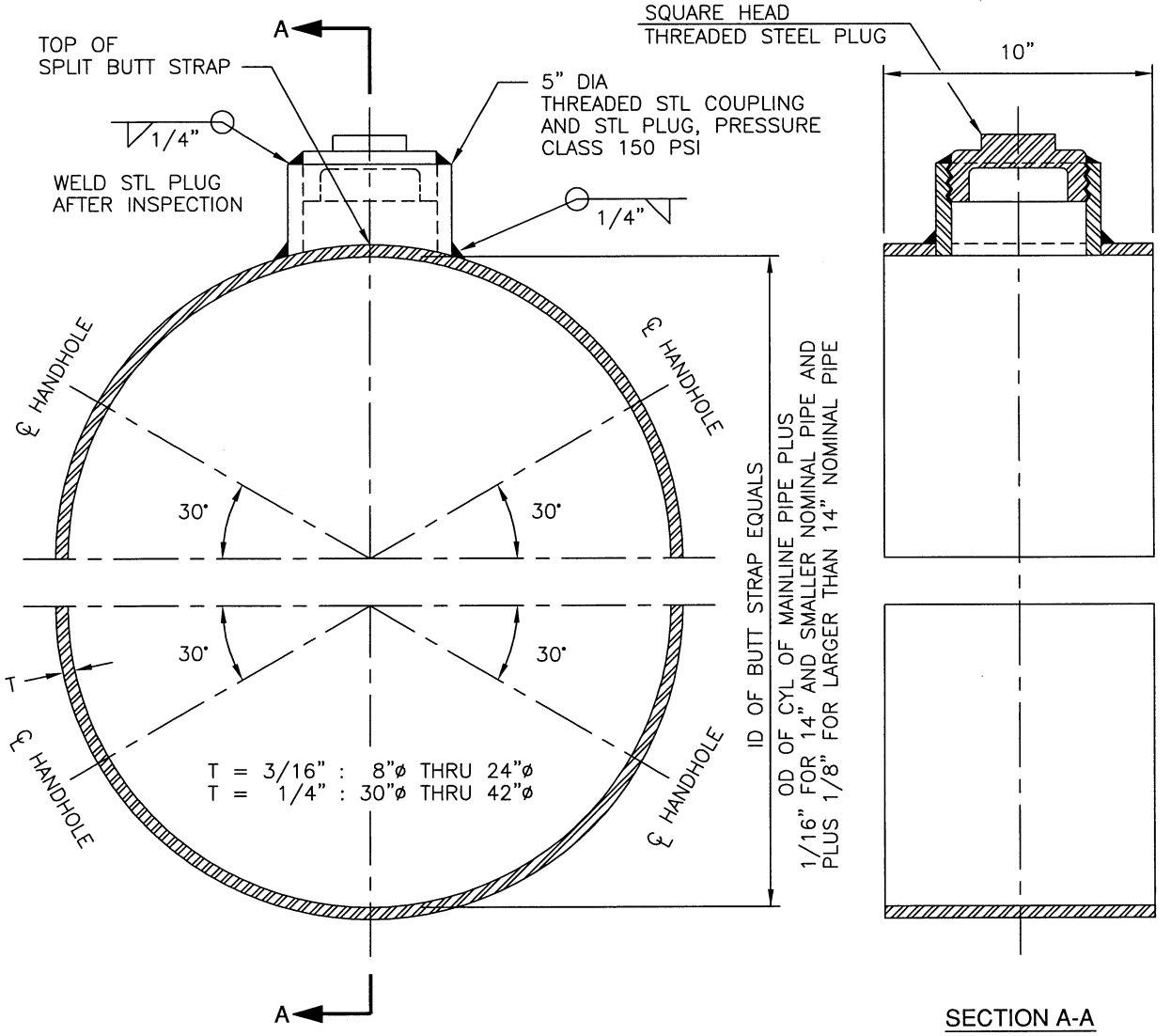
5.) COMPACTED BACKFILL MATERIAL IN THE UNPAVED AREAS SHALL COMPLY WITH THE SAME REQUIREMENTS AS THE BACKFILL MATERIAL COMPACTION IN THE STREETS.

6.) THE BASE COURSE MATERIAL SHALL BE CRUSHED AGGREGATE BASE MATERIAL AS SPECIFIED IN SECTION 200-2 "UNTREATED BASE MATERIALS" OF THE CONSTRUCTION SPECIFICATIONS.

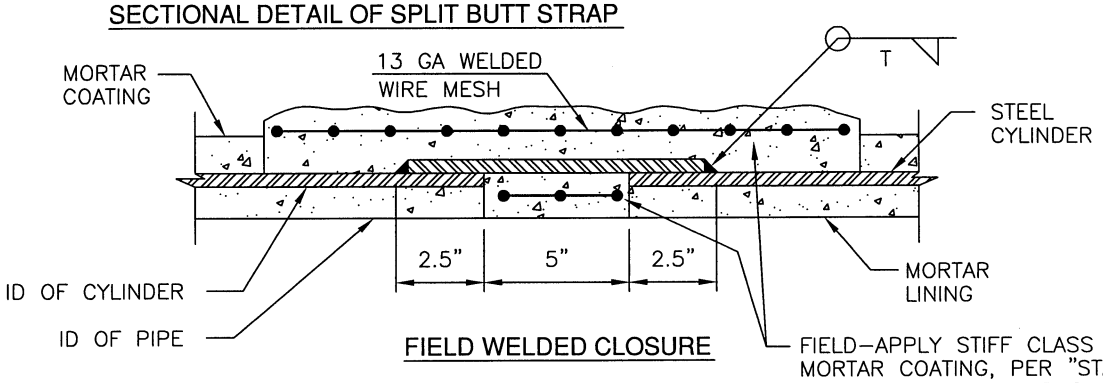
7.) IF THE ENGINEER DETERMINES THAT THE SOIL UPON WHICH THE PIPE IS TO BE PLACED IS UNSTABLE, THE CONTRACTOR SHALL OVER-EXCAVATE THE BOTTOM OF THE TRENCH TO A DEPTH OF 12" OR AS DIRECTED BY THE ENGINEER AND PLACE A LAYER OF CRUSHED ROCK ON THE TRENCH SUBGRADE COMPACTED TO 90% RELATIVE COMPACTION.

8.) THE BACKFILL AND PAVING SHALL COMPLY WITH THE CONSTRUCTION SPECIFICATIONS. THE BACKFILL AND PAVING MAY VARY ACCORDING TO AGENCY REQUIREMENTS.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	TYPICAL PIPE TRENCH, BEDDING, BACKFILL AND PAVEMENT REQUIREMENTS (GENERAL NOTES)	
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004	CWD-040-2



SECTIONAL DETAIL OF SPLIT BUTT STRAP



FIELD WELDED CLOSURE

FIELD–APPLY STIFF CLASS C CEMENT MORTAR COATING, PER "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" SEC 201–5.1, REINFORCED WITH 2" x 4" x 13 GA WELDED WIRE MESH

NOTES: 1.) SHIP IN HALVES AND WELD IN FIELD

2.)

PIPE SIZE	HANDHOLES
8" THROUGH 12"	1
14" THROUGH 18"	2
20" THROUGH 42"	4

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WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL SPLIT BUTT STRAP 8" THROUGH 42" DIAMETER (150 PSI DESIGN PRESSURE)

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-220

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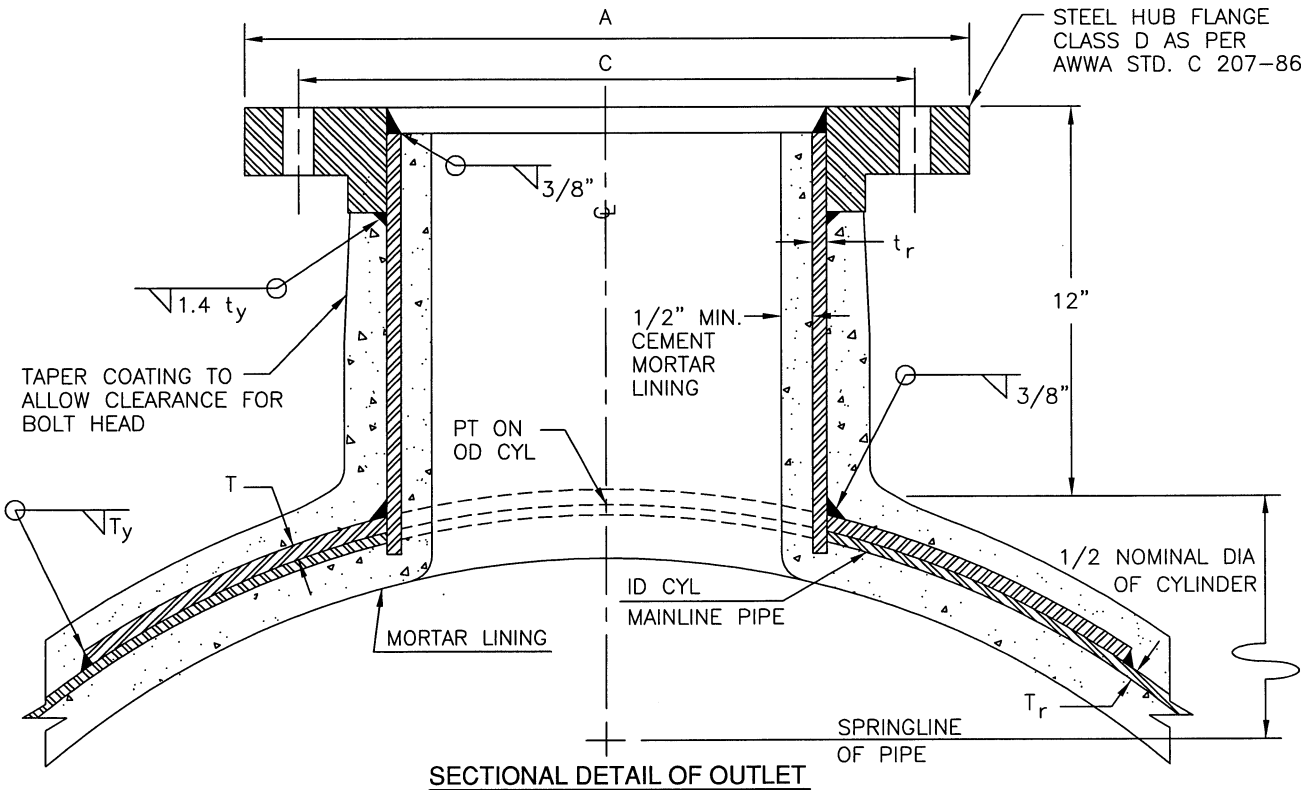

SECTIONAL DETAIL OF OUTLET

NOMINAL OUTLET DIA (in.)	MINIMUM "T_r" (in.)	HUB FLANGE	
		"C" (in.)	A (in.)
4	0.237	7 1/2	9
6	0.280	9 1/2	11
8	0.322	11 3/4	13 1/2
10	0.366	14 1/4	16
12	0.375	17	19
14	0.375	18 3/4	21
16	0.375	21 1/4	23 1/2
18	0.375	22 3/4	25
20	0.375	25	27 1/2

NOTES:

1.) SEE MAINLINE PIPING DRAWING FOR POSITON AND USE OF OUTLET.
2.) STEEL HUB FLANGE CLASS D AS PER AWWA STD C207-86.
3.) SEE MAINLINE PIPE DRAWING FOR MINIMUM DESIGN THICKNESS "T_r".
4.) "w" AND "T", REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA M11, 13.3-13.6, OR EQUAL TO MANUFACTRERS REINFORCING GUIDE.
5.) "T_y" = MAINLINE CYLINDER THICKNESS.
6.) "T_r" = REQUIRED MAINLINE CYLINDER THICKNESS.
7.) "t_y" = BRANCH CYLINDER THICKNESS.
8.) "t_r" = REQUIRED BRANCH CYLINDER THICKNESS.
9.) USE SADDLE OR WRAPPER WHENEVER OUTLET DIAMETER IS LESS THAN OR EQUAL TO 55% OF THE MAINLINE DIAMETER; WHEN GREATER THAN 55%, USE CROTCH PLATE IN ACCORDANCE WITH MANUFACTURER'S REINFORCING GUIDE.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL FLANGED OUTLET 4" THROUGH 20"

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-300

0	DRAWN WEF	DATE 03-04	CHECK	APPROV.
1	DRAWN	DATE	CHECK	APPROV.
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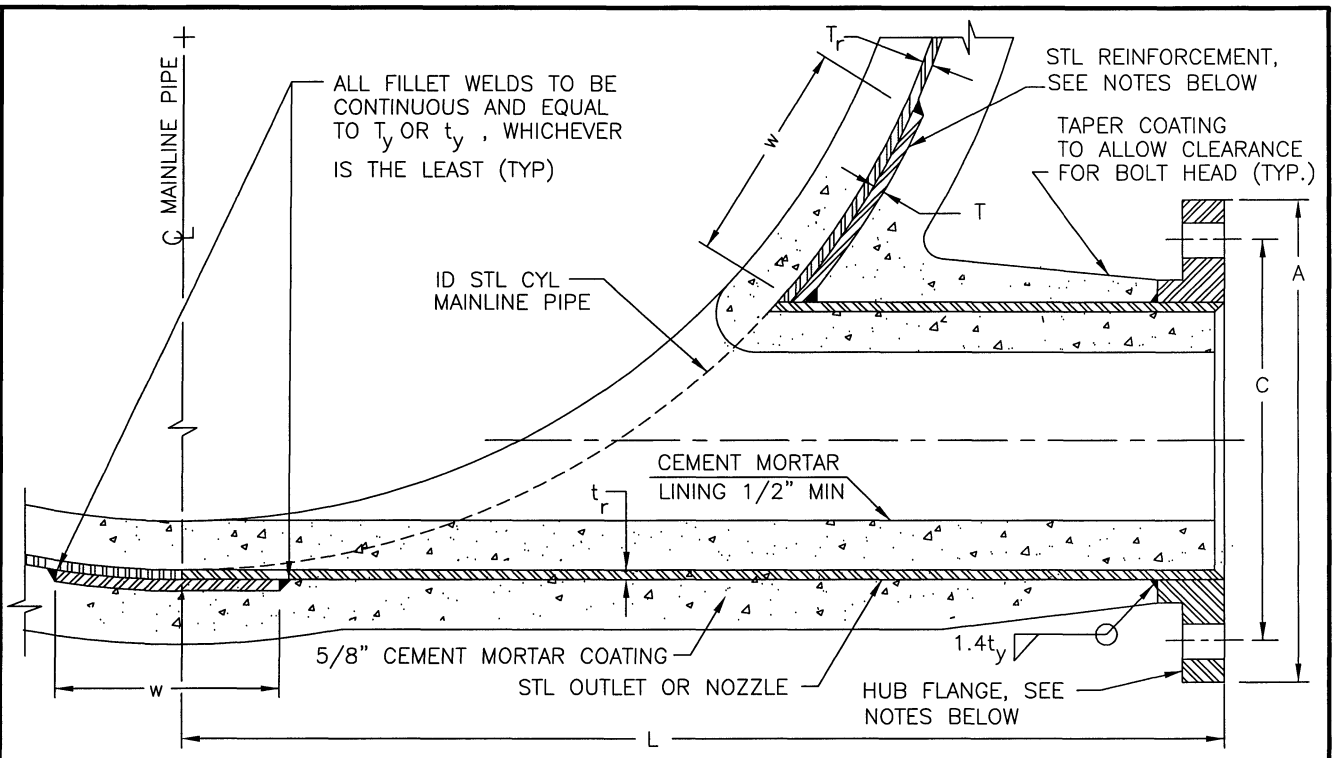
3	DRAWN	DATE	CHECK	APPROV.



SECTIONAL DETAIL OF OUTLET

NOMINAL OUTLET DIA (in)	MINIMUM "t_r" (in)	HUB FLANGE	
		"C" (in)	"A" (in)
4	0.237	7 1/2	9
6	0.280	9 1/2	11
8	0.322	11 3/4	13 1/2
10	0.366	14 1/4	16
12	0.375	17	19

NOTES:

1.) SEE MAINLINE PIPING DRAWING FOR POSITION AND USE OF OUTLET.

2.) STEEL HUB FLANGE CLASS D AS PER AWWA STD. C207-86.

3.) SEE MAINLINE PIPING DRAWING FOR MINIMUM DESIGN THICKNESS "T_r".

4.) "w" AND "T", REINFORCEMENT PLATE DIMENSIONS FOR OUTLET JOINTS, TO BE DESIGNED PER AWWA MII, 13.3-13.6, OR EQUAL TO MANUFACTURERS REINFORCING GUIDE.

5.) "T_y"= MAINLINE CYLINDER THICKNESS.

6.) "T_r"= REQUIRED MAINLINE CYLINDER THICKNESS.

7.) "t_y"= BRANCH CYLINDER THICKNESS.

8.) "t_r"= REQUIRED BRANCH CYLINDER THICKNESS.

9.) "L" = $\frac{\text{NOMINAL DIA}}{2}$ + 12"

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL FLANGED TANGENT OUTLET 4" THROUGH 12" DIAMETER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-320

	APPROV.	CHECK	DATE	DRAWN
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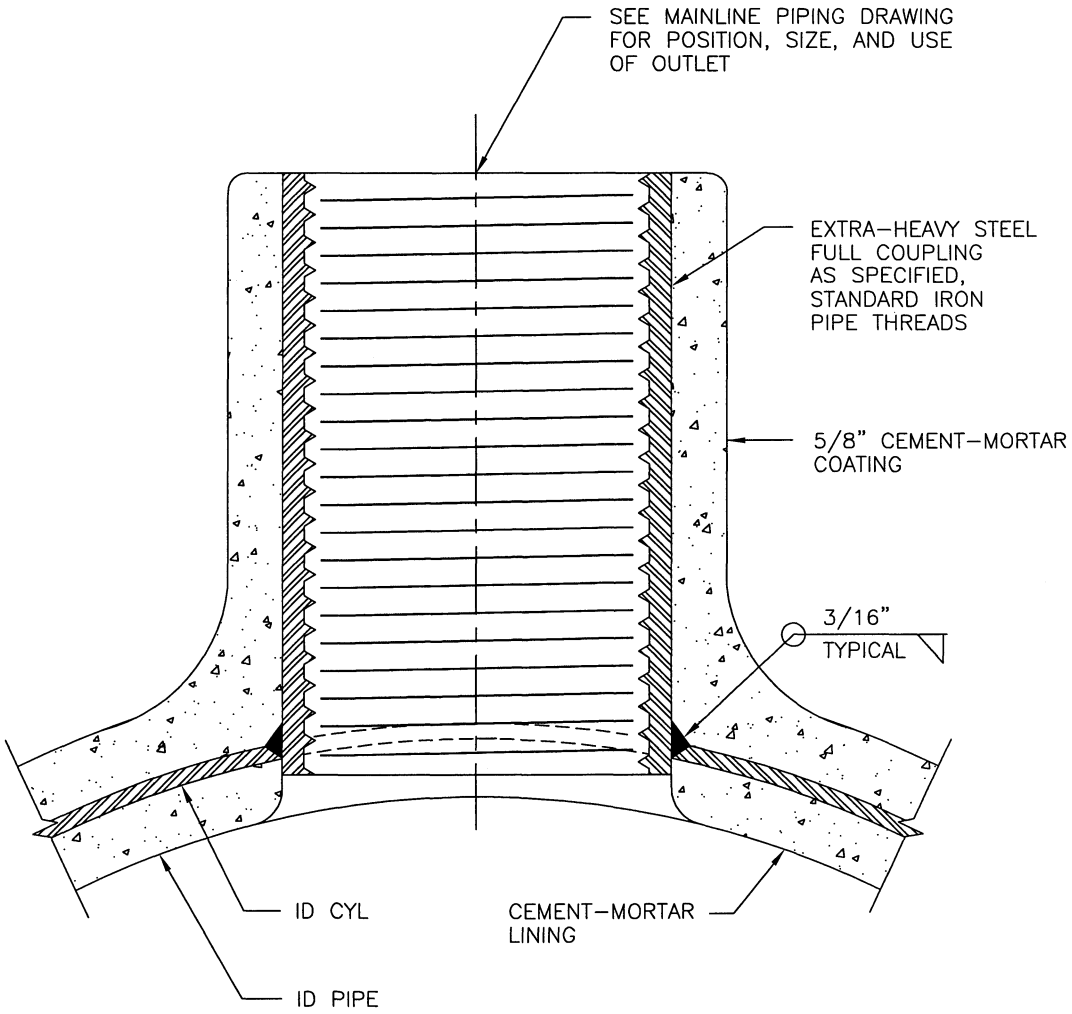

CROSS-SECTION OF OUTLET

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL THREADED OUTLET 1" THRU 2 1/2" DIAMETER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-340

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	WEF	03–04																	

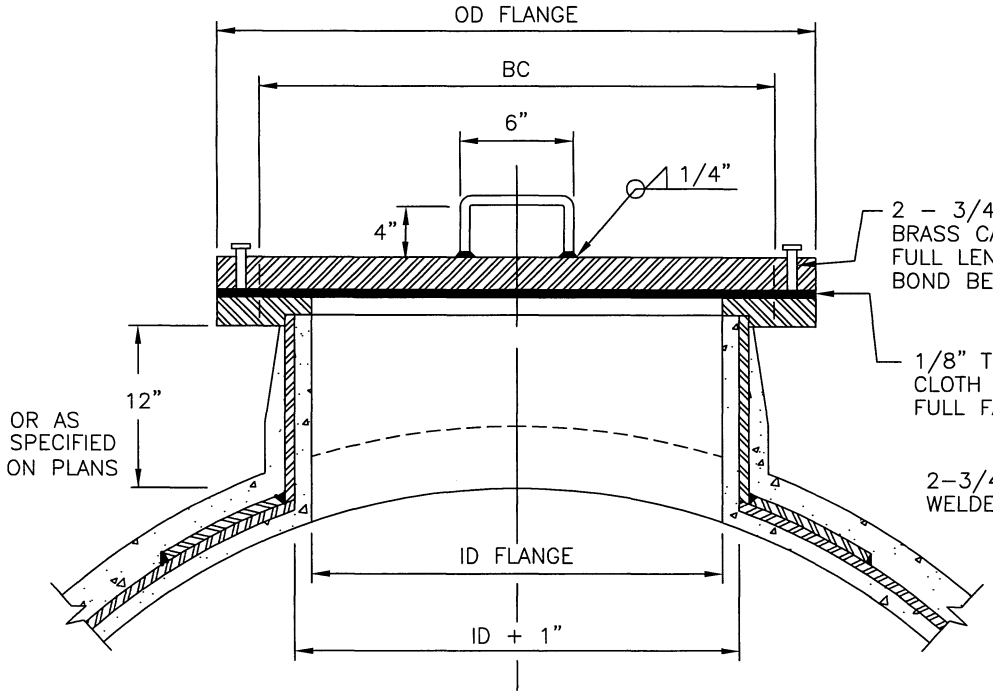
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

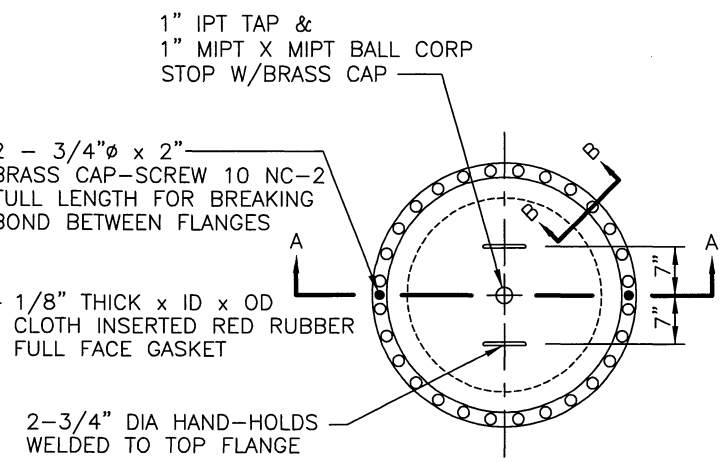
TYPICAL MANWAY FOR LARGE PIPELINES

DATE: MAR 2004

CWD-350



CROSS-SECTION OF MANWAY A-A



TOP VIEW OF MANWAY LID

NOTES:

1.) PAINT ALL EXPOSED INTERIOR & EXTERIOR METAL SURFACES OF FLANGES, EXCEPT GASKET SURFACE, PER SPECIFICATIONS.

2.) 150 LB. HUB FLANGES SHALL BE USED IF WORKING PRESSURE 175 PSI OR LESS, 300 LB. FLANGES SHALL BE USED IF WORKING PRESSURE OVER 175 PSI.

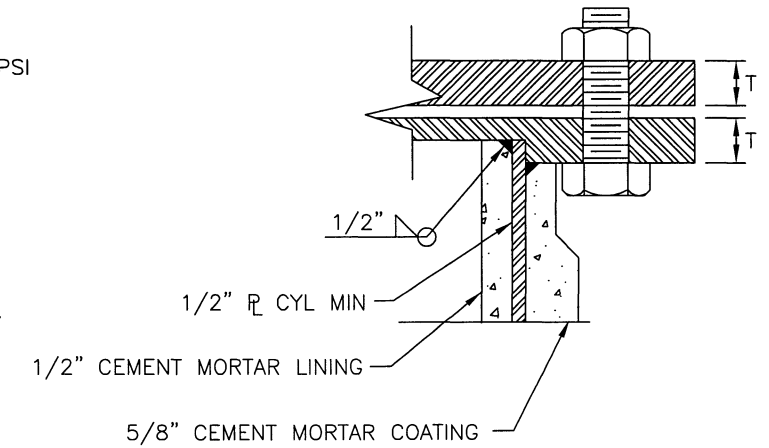
3.) REINFORCE MANWAY IN ACCORDANCE WITH AWWA M11 OR EQUAL, MANUFACTURER'S REINFORCING GUIDE.

4.) MANWAY STATIONS MAY BE VARIED IN ORDER TO LOCATE THE 24" DIA OPENING @ MIDPOINT IN INDIVIDUAL PIPE LENGTHS THUS PERMITTING THE MANUFACTURE OF A UNIVERSAL PIPE LENGTH.

5.) PAINT UNDERSIDE OF BLIND FLANGE WITH EPOXY PER SPECIFICATIONS.

ID	FLANGE OD	BC	T	BOLT DIA	NO. BOLTS	PIPE SIZE
24"	32"	29 1/2"	1 1/4"	1 1/4"	20	24" TO 30"
30"	38 3/4"	36"	1 3/8"	1 1/4"	28	36" & LARGER

HEX HEAD NUTS AND BOLTS IN ACCORDANCE WITH THE SPECIFICATIONS.



CROSS SECTION OF BOLT ASSEMBLY B-B

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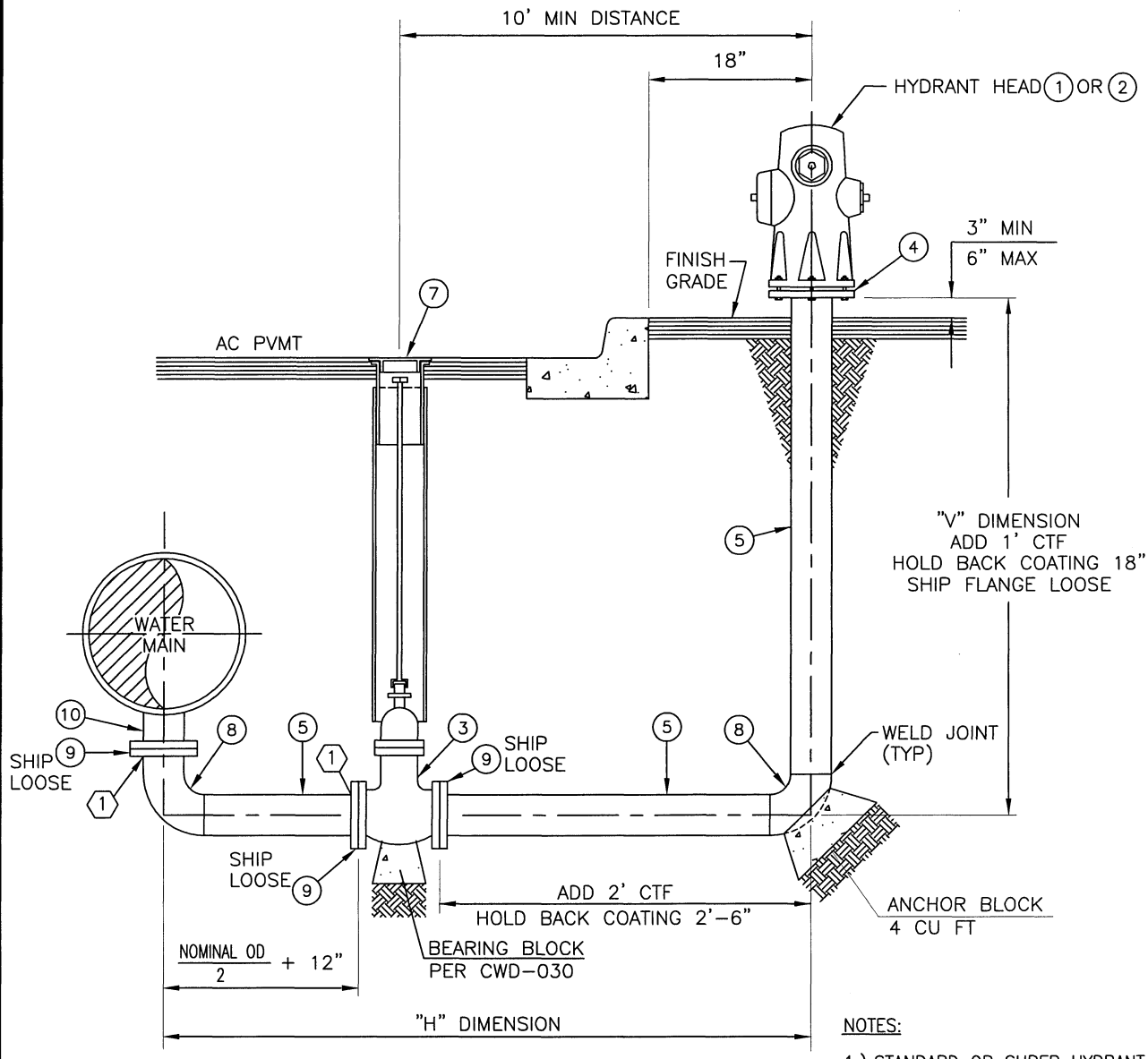
2	DRAWN	DATE	CHECK	APPROV.
3	DRAWN	DATE	CHECK	APPROV.



BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) STANDARD HYDRANT : 1– 2 1/2", 1– 4"	1	CWD–700
(2) SUPER HYDRANT : 2 – 2 1/2", 1 – 4"	1	CWD–700
(3) 6" FLANGED RW GATE VALVE	1	CWD–500
(4) 6" SLIP–ON WELD FLANGE (6–HOLE)	1	
(5) 6" ML&C STEEL PIPE 10 GA, 6 5/8" OD 1/2 CML, 3/4" CMC	1	
(6) DELETED		
(7) 8" GATE BOX CAP, GALV SPLIT–SLEEVE, AND 12 GA STL PIPE	1	CWD–515
(8) 6" 90° ELL	2	
(9) 6" FLANGE	3	
(10) 6" FLANGED OUTLET	1	CWD–300

NOTES:

1.) STANDARD OR SUPER HYDRANT PER PLANS AND SPECIFICATIONS.

2.) BREAK–OFF BOLTS REQUIRED BETWEEN HYDRANT AND FLANGE PER SPECIFICATION.

3.) HYDRANT OUTLETS SHALL FACE STREET.

4.) TOP OF HYDRANT BLOW–OFF TO BE PAINTED BLUE #315–15 BY FULLER O'BRIEN CO. OR DEPARTMENT APPROVED EQUAL.

5.) WELD ALL NON–MECHANICAL JOINTS.

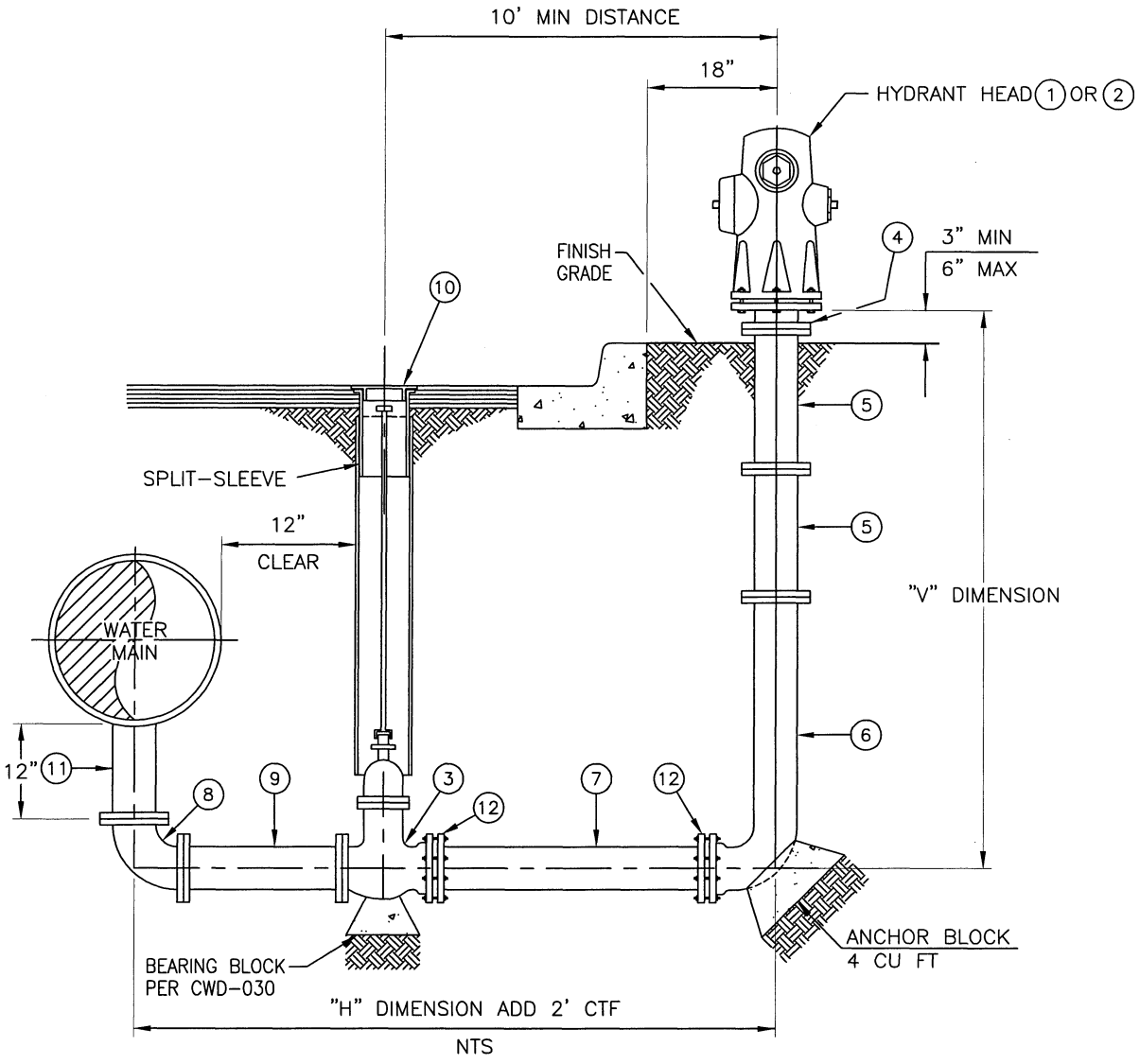
6.) "H" AND "V" DIMENSION AS SHOWN ON PLANS

(1) HOLD BACK COATING 6"

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

6" HYDRANT HEAD BLOW-OFF ML&C STEEL BURY 24" MAIN AND SMALLER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-408



BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) STANDARD HYDRANT : 1 – 2 1/2 ", 1 – 4"	1	CWD-700
(2) SUPER HYDRANT : 2 – 2 1/2", 1 – 4"	1	CWD-700
(3) 6" FLG x MJ RW GATE VALVE	1	CWD-500
(4) 6" x 4" FLANGED ADAPTER, 8 HOLE TO 6 HOLE	1	
(5) 6" x 18" DI SPOOL FLG x FLG AS REQUIRED		
(6) 6" x 48" DI BURY FLG x MJ	1	
(7) 6" DI PIPE AS REQUIRED (RESTRAIN ALL JOINTS)		
(8) 6" FLANGED 90° ELL (LONG RADIUS)	1	
(9) 6" x 12" DI SPOOL FLG x FLG AS REQUIRED		
(10) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, 12 GA STL PIPE	1	CWD-515
(11) 6" FLANGED OUTLET	1	CWD-300
(12) 6" GRIP RING KIT	2	

NOTES:

1.) STANDARD OR SUPER HYDRANT PER PLANS AND SPECIFICATIONS.

2.) BREAK-OFF BOLTS REQUIRED BETWEEN HYDRANT AND FLANGE. INSTALL PER SPECIFICATIONS.

3.) HYDRANT HEAD OUTLETS SHALL FACE STREET.

4.) TOP OF HYDRANT HEAD BLOW-OFF TO BE PAINTED BLUE #315-15 BY FULLER O'BRIEN CO. OR DEPARTMENT APPROVED EQUAL.

5.) "H" AND "V" DIMENSION AS SHOWN ON PLAN.

DRAWN	DATE	CHECK	APPROV.
WEF	03-04		
0			
1			
2			
3			

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

6" HYDRANT HEAD BLOW-OFF DI BURY 24" MAIN AND SMALLER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-409

	DRAWN	DATE	CHECK	APPROV.
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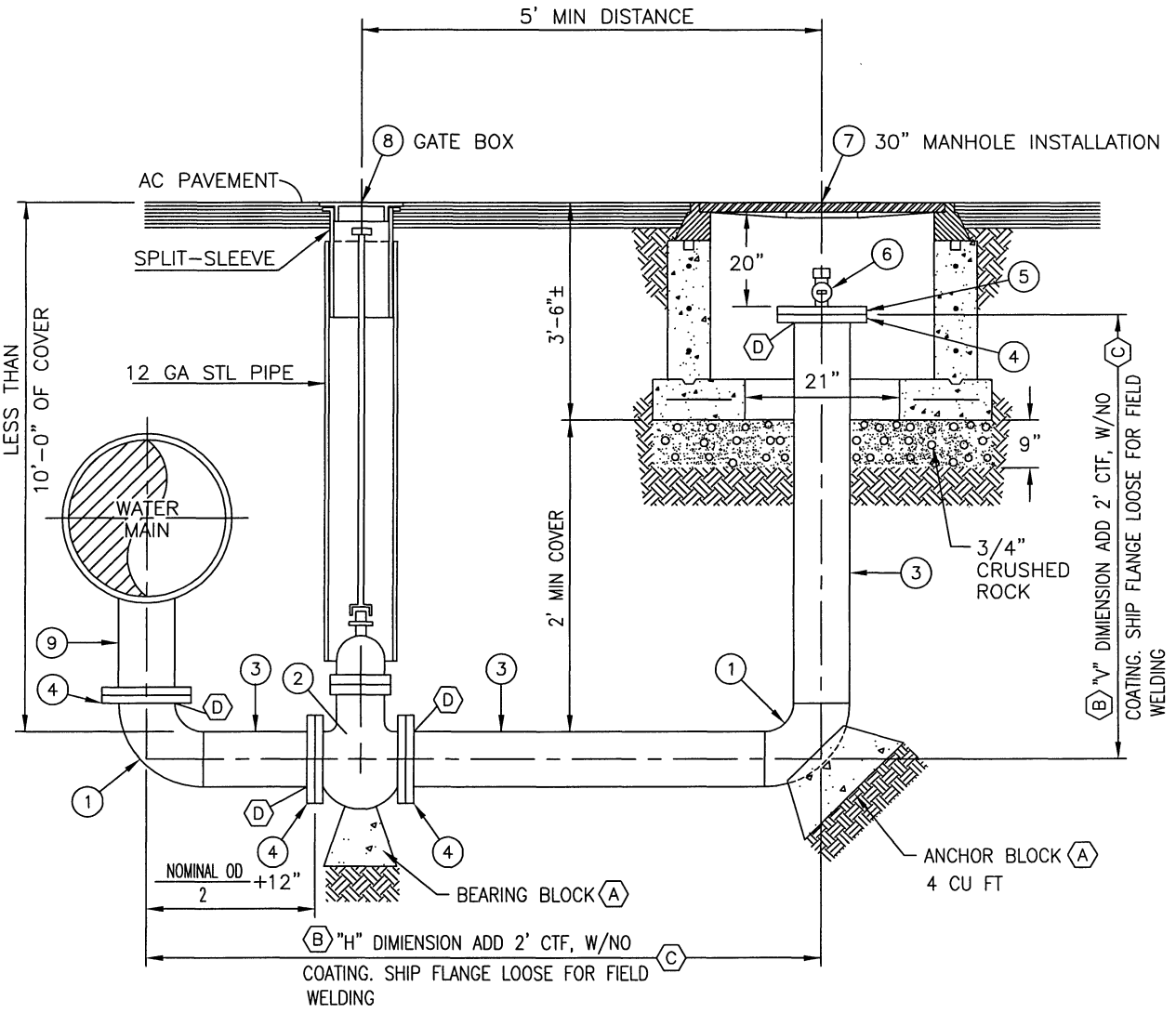


BILL OF MATERIALS

ITEM	QUANTITY	REFERENCE
(1) 8" 90° ELL	2	
(2) 8" FLANGED RW GATE VALVE	1	CWD-500
(3) 8" ML&C STL PIPE 10 GA, 8 5/8" OD 1/2" CML, 3/4" CMC	VARIES	
(4) 8" SLIP-ON WELDED FLANGE	4	
(5) 8" BLIND FLANGE W/ 1" IPT TAP	1	
(6) 1" MIPT X MIPT BALL CORP STOP & 1" BRASS CAP	1	
(7) 30" MANHOLE COVER & RIM 30" ID CONC MANHOLE SECTION	VARIES	CWD-811
(8) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	VARIES	CWD-515
(9) 8" FLANGED OUTLET	1	CWD-300

NOTES:

(A) ANCHOR AND BEARING BLOCKS PER CWD-030

(B) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS

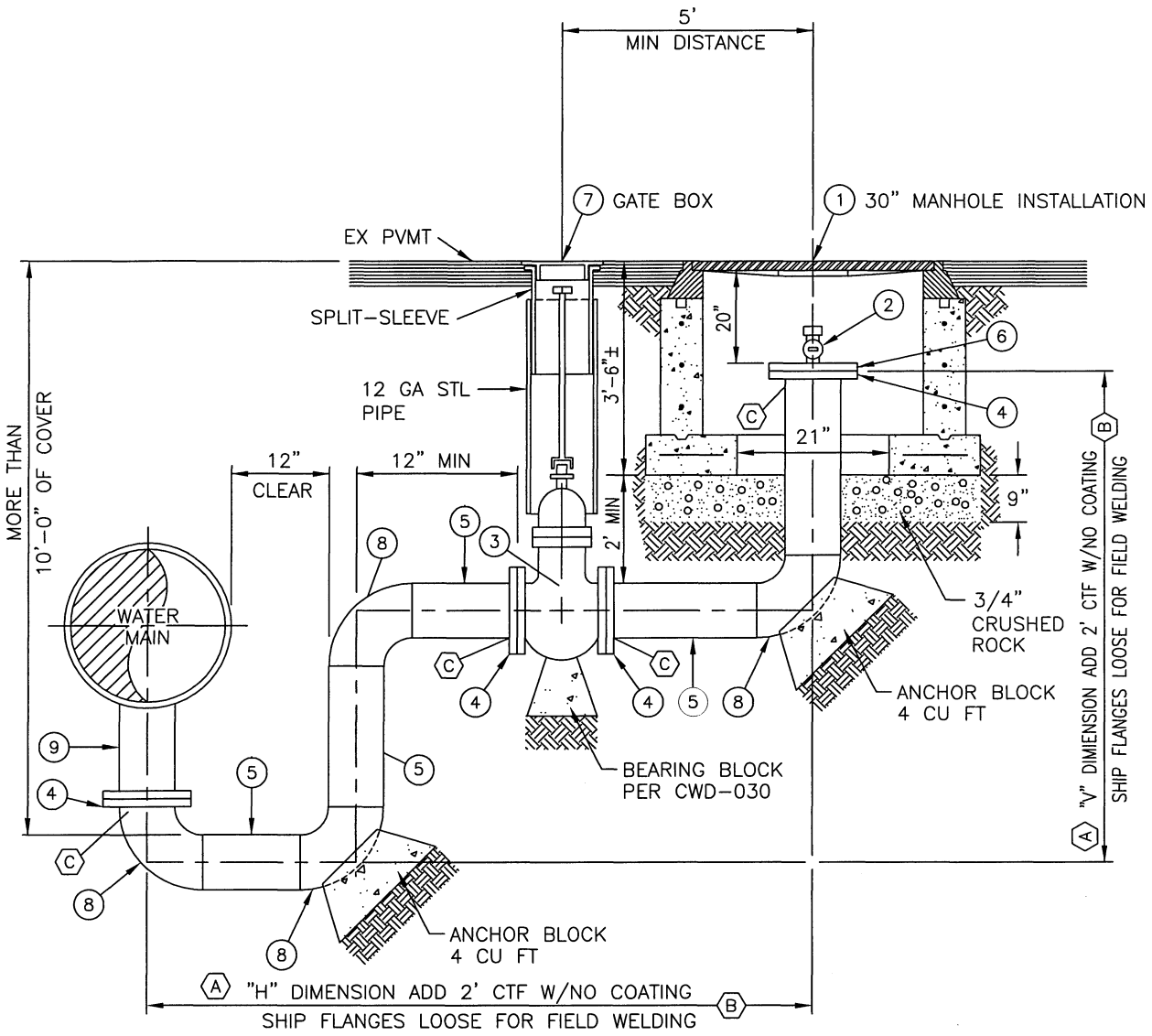
(C) WELD ALL PIPE JOINTS 360°

(D) HOLD BACK COATING 6"

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

8" BLOW-OFF BELOW GRADE WITH LESS THAN 10' OF COVER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-410-A



BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) 30" MANHOLE COVER & RIM 30" ID CONC MANHOLE SECTION	1	CWD-811
(2) 1" MIPT X MIPT BALL CORP STOP & 1" BRASS CAP	1	CWD-500
(3) 8" FLANGED RW GATE VALVE	1	
(4) 8" SLIP-ON WELDED FLANGE	4	
(5) 8" ML&C STL PIPE 10 GA, 8 5/8" OD 1/2" CML, 3/4" CMC	VARIES	
(6) 8" BLIND FLANGE W/1" IPT TAP	1	
(7) 10" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	VARIES	CWD-515
(8) 8" 90° ELL	4	
(9) 8" FLANGED OUTLET	1	CWD-300

NOTES:

(A) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS

(B) WELD ALL PIPE JOINTS 360°

(C) HOLD BACK COATING 6"

APPROV.	CHECK	DATE	DRAWN	
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				3
APPROV.	CHECK	DATE	DRAWN	
			WEF	
			03-04	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

8" BLOW-OFF BELOW GRADE WITH MORE THAN 10' OF COVER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-410-B

0	1	2	3
DRAWN WEF	DRAWN	DRAWN	DRAWN
DATE 03-04	DATE	DATE	DATE
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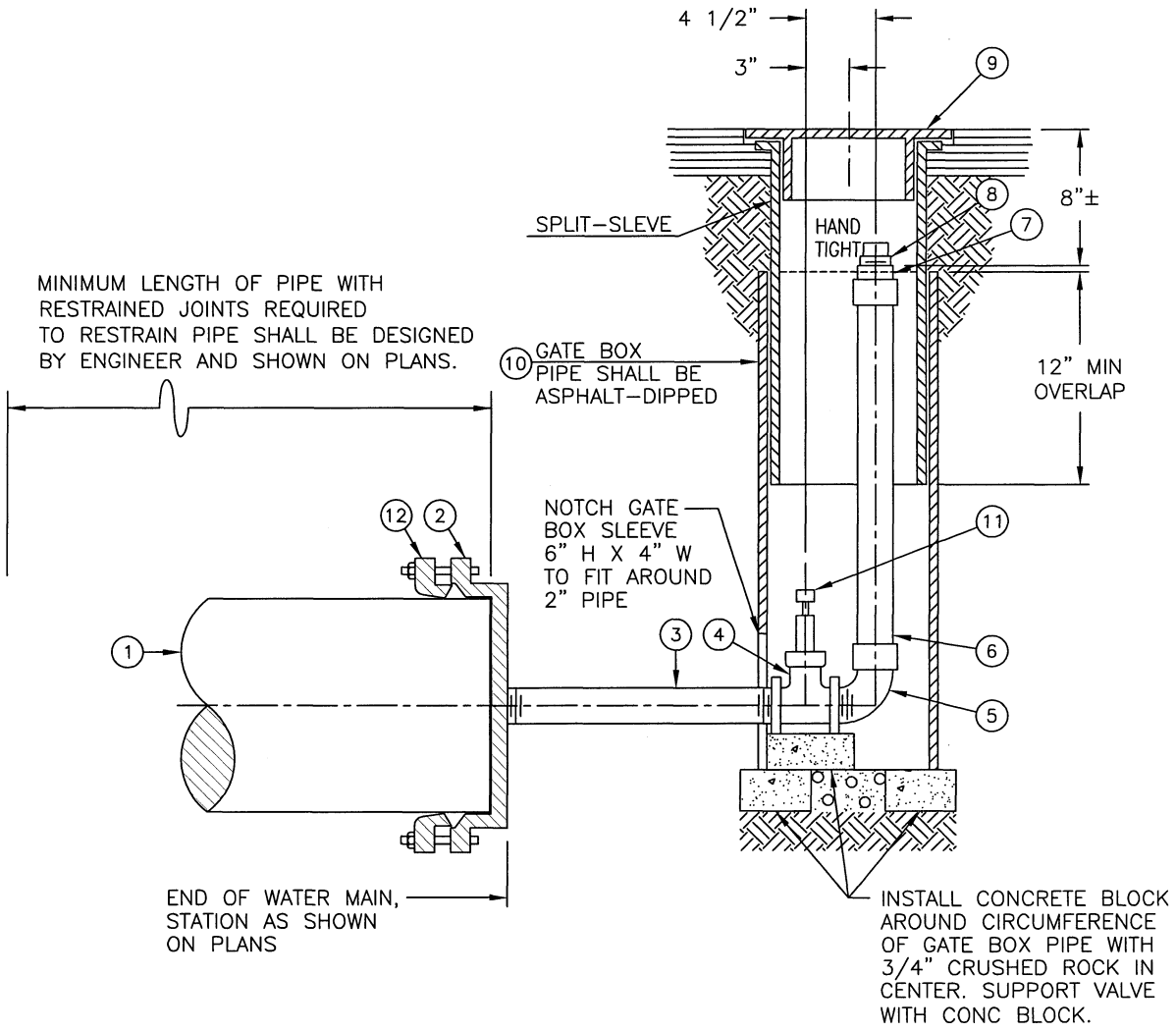
APPROV.	APPROV.	APPROV.	APPROV.



BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) 4" THROUGH 12" MAIN	1	PER PLAN
(2) MAIN SIZE MJ CAP W/ 2" TAP IPF	1	PER PLAN
(3) 2" x 12" BRASS NIPPLE	1	
(4) 2" BRONZE VALVE, IPF, PER SPEC	1	
(5) 2" 90° ELL SW x IPM	1	
(6) 2" x 30"± COPPER PIPE, HARD, NO JOINTS	VARIABLE	
(7) 2" ADAPTER SW x IPF	1	
(8) 2" BRASS PLUG, IPM	1	
(9) 10" GATE BOX CAP AND SPLIT SLEEVE	1	CWD-515
(10) 10" DIA, 12 GA, STEEL PIPE	VARIABLE	
(11) 1" SQ NUT FOR 2" VALVE AS REQUIRED	1	SUPPLIED BY CITY
(12) MAIN SIZE GRIP RING KIT	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 2" BLOW-OFF ASSEMBLY FOR MAINS WITH LESS THAN 42" OF COVER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-411-A

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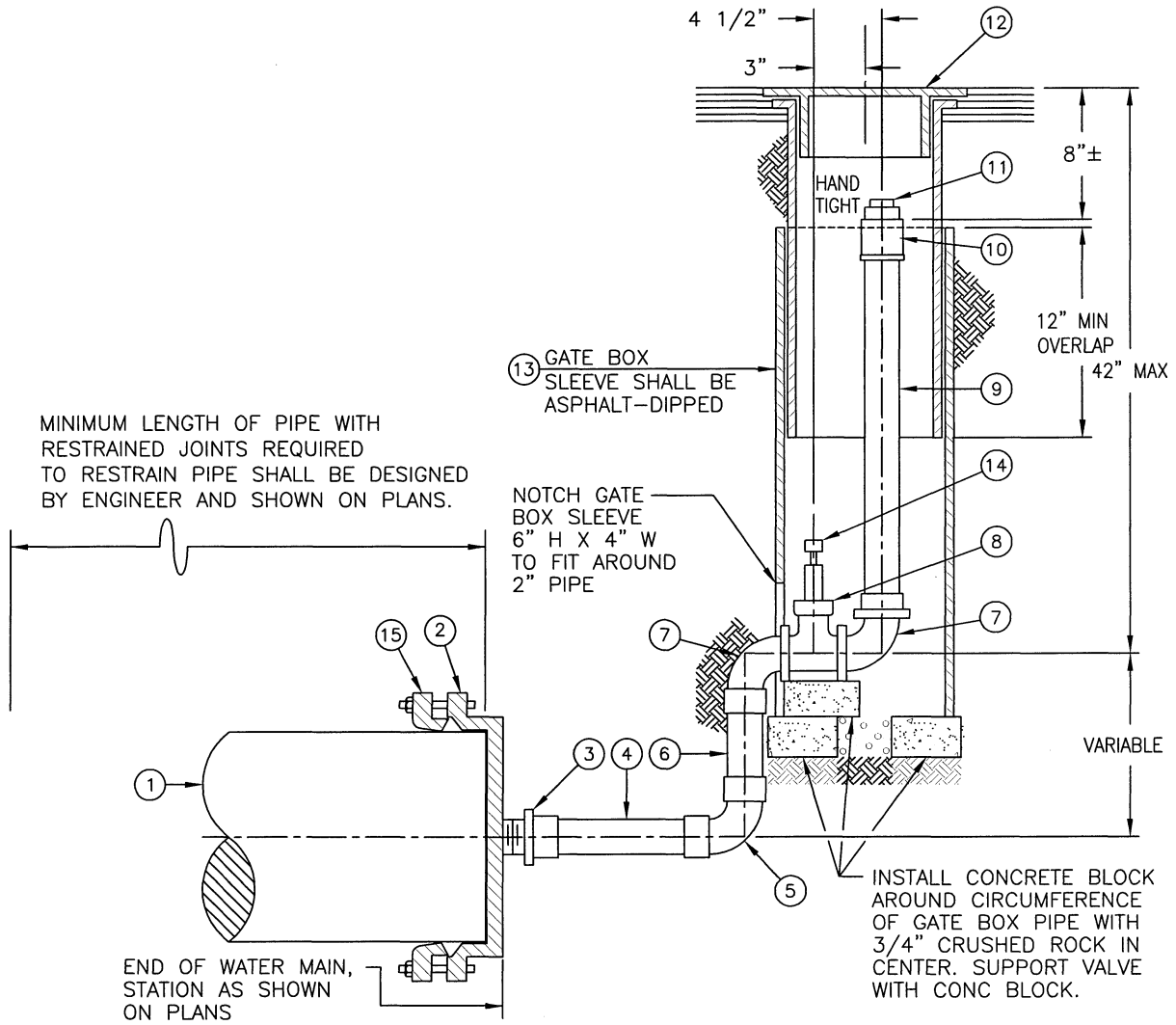

BILL OF MATERIALS

ITEM	QUANTITY	REFERENCE
(1) 4" THROUGH 12" MAIN	1	PER PLAN
(2) MAIN SIZE MJ CAP WITH 2" TAP IPF	1	PER PLAN
(3) 2" ADAPTER IPM x SW	1	
(4) 2" X 12" COPPER PIPE, SOFT	1	
(5) 2" 90° ELL SW x SW	1	
(6) 2" COPPER PIPE, HARD DRAWN	VARIABLE	
(7) 2" 90° BRASS ELL IPM x SW	2	
(8) 2" BRONZE VALVE, FIPT, PER SPEC	1	
(9) 2" COPPER PIPE, HARD (NO JOINTS)	VARIABLE	
(10) 2" ADAPTER SW x IPF	1	
(11) 2" BRASS PLUG IPM	1	
(12) 10" GATE BOX CAP & SPLIT SLEEVE	1	CWD-515
(13) 10" DIA STEEL SLEEVE (VARIES)	VARIABLE	
(14) 1" SQ NUT FOR 2" VALVE AS REQUIRED	1	SUPPLIED BY CITY
(15) MAIN SIZE GRIP RING KIT	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 2" BLOW-OFF ASSEMBLY FOR MAINS WITH MORE THAN 42" OF COVER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-411-B

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DRAWN WEF	DRAWN	DRAWN	DRAWN
DATE 03-04	DATE	DATE	DATE
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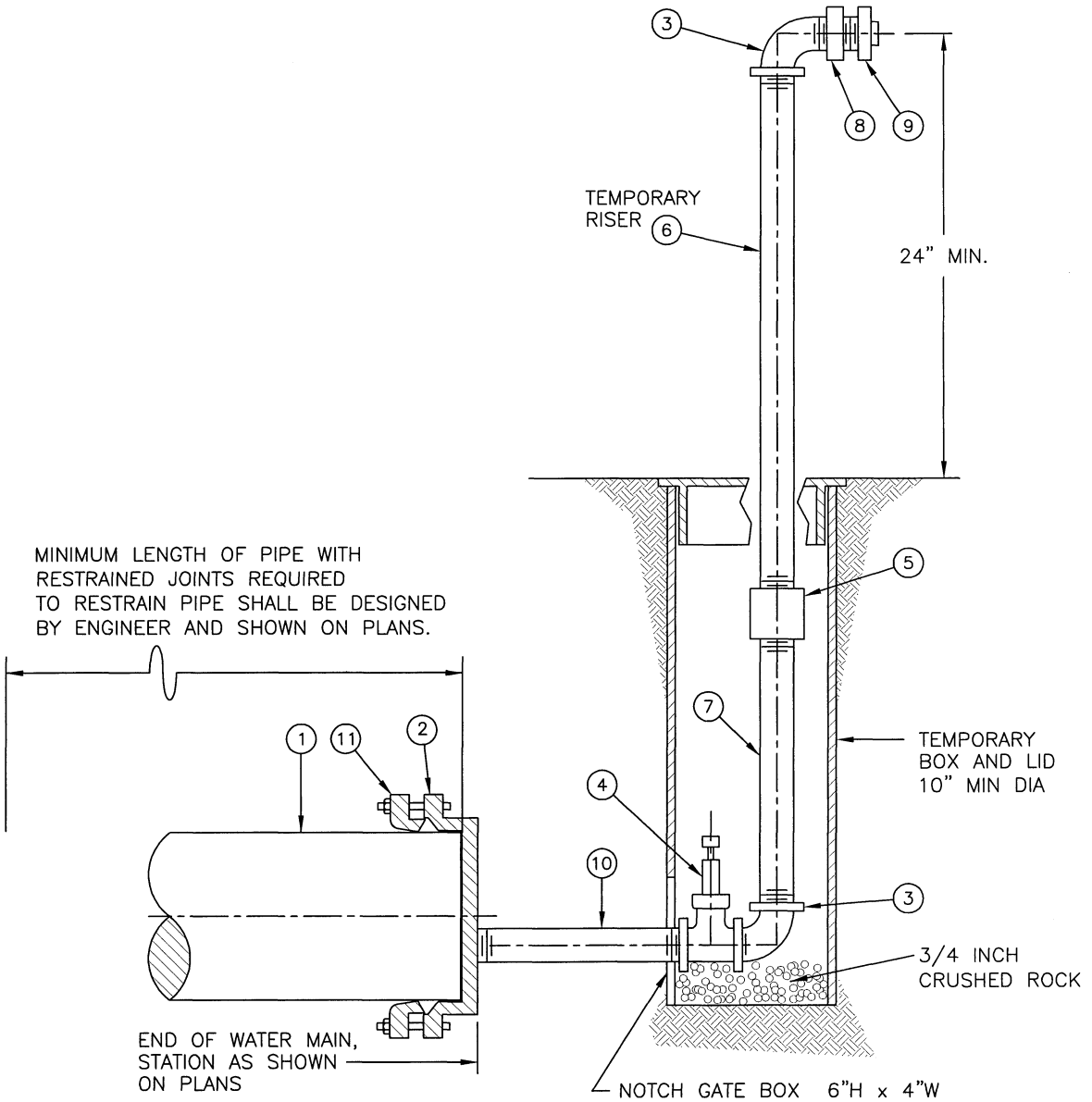


BILL OF MATERIALS	
	QUANTITY
(1) 6" THROUGH 10" WATER MAIN	PER PLAN
(2) MJ END CAP WITH 2" TAP	1
(3) 2" GALV 90° STREET ELL (IPT)	2
(4) 2" GATE (IPT)	1
(5) 2" GALV COUPLING (IPT)	1
(6) 2" x 30"± GALV PIPE (IPT)	1
(7) 2" x 24"± GALV PIPE (IPT)	1
(8) 2" IPF x 2 1/2" MHT BUSHING	1
(9) 2 1/2" HOSE CAP	1
(10) 2" x 12"± GALV NIPPLE (IPT)	1
(11) MAIN SIZE GRIP RING KIT	1

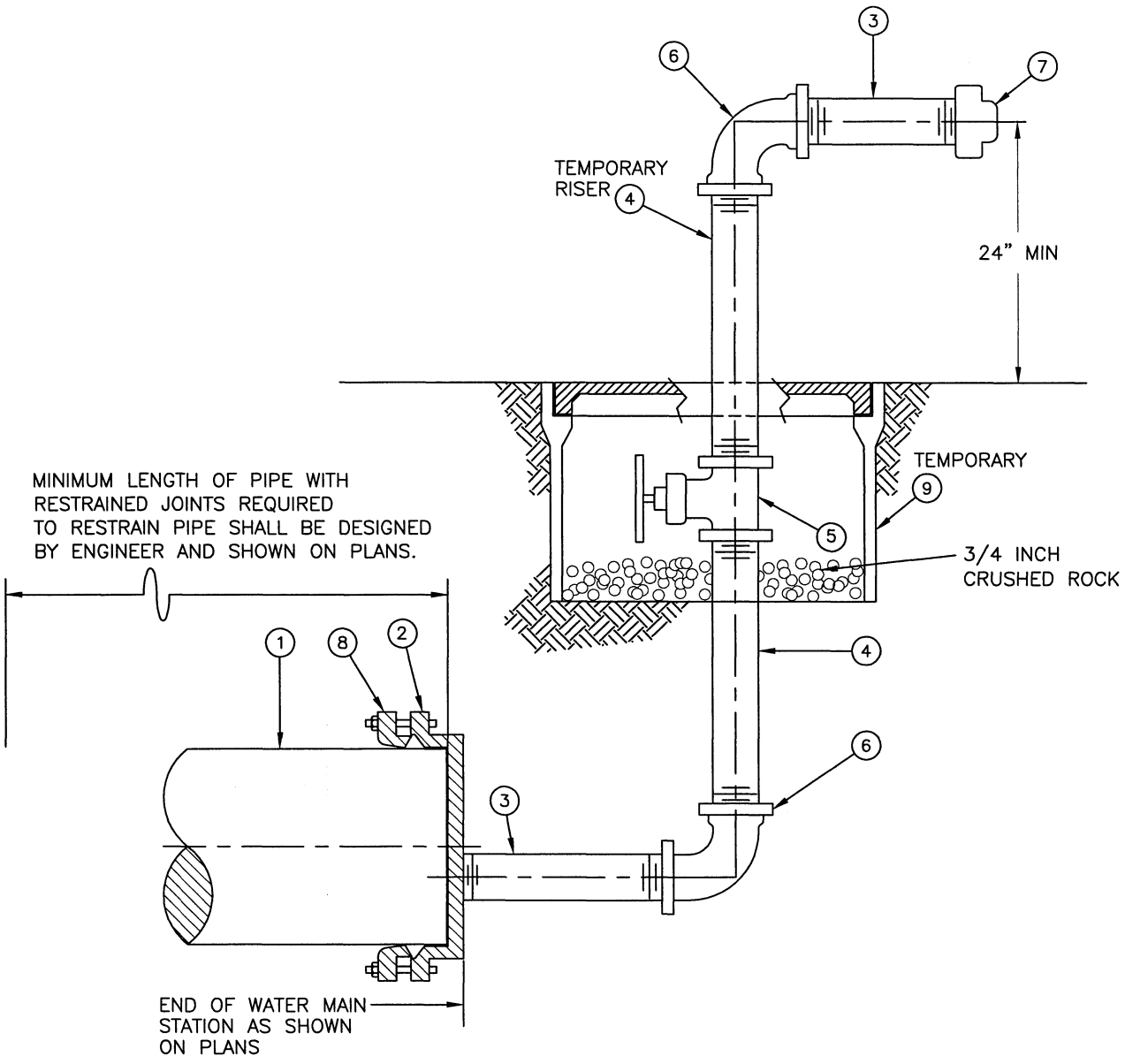
NOTES:

1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

6" THROUGH 10" TEMPORARY CONSTRUCTION END CAPS FOR FLUSHING, TESTING, & CHLORINATION

RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-412



BILL OF MATERIALS	
ITEM	QUANTITY
(1) 12" WATER MAIN	PER PLAN
(2) 12" MJ END CAP WITH 4" ECCENTRIC TAP (IPT)	1
(3) 4" x 12" GALV STEEL PIPE (IPT)	2
(4) 4" GALV STEEL PIPE (IPT)	6 LF ±
(5) 4" VALVE (FIPT), PER SPECIFICATIONS	1
(6) 4" x 90° GALV STEEL ELL (FIPT)	2
(7) 4" GALV END CAP (FIPT)	1
(8) MAIN SIZE GRIP RING KIT	1
(9) METER VAULT PER SPECIFICATIONS	1

NOTES:

1.) CONTRACTOR SHALL LEAVE END CAP IN PLACE UNTIL FINAL CONNECTION BY CITY FORCES

	DRAWN	DATE	CHECK	APPROV.
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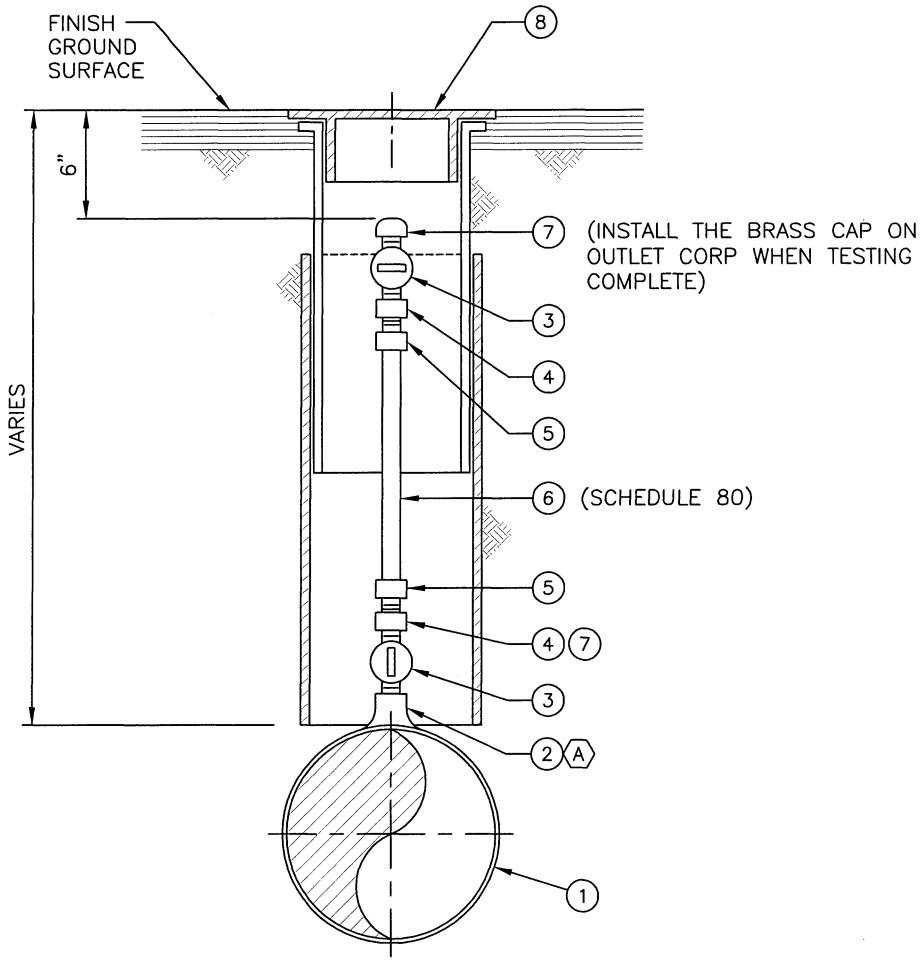
0	WEF	03-04		

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

12" TEMPORARY CONSTRUCTION END CAP FOR FLUSHING, TESTING, & CHLORINATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-413



BILL OF MATERIALS			
		QUANTITY	REF
1	ML&C STEEL OR DIP WATER MAIN	PER PLAN	
2	1" THREADED OUTLET	1	CWD-340
3	1" MIPT x MIPT BALL CORP STOP	2	
4	1" GALV STEEL COUPLING	2	
5	1" PVC ADAPTER	2	
6	1" PVC PIPE	VARIES	
7	1" BRASS CAP	1	
8	10" GATE BOX AND SPLIT-SLEEVE	1	CWD-515

NOTES:

1.) CONTRACTOR SHALL REMOVE VALVE BOX, CLOSE AND CAP 1" BALL CORP STOP, AND AND REMOVE PVC RISER FOLLOWING ACCEPTANCE OF THE TRANSMISSION MAIN.

2.) STATION, LOCATION AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

(A) DOUBLE-STRAP SERVICE SADDLES SHALL BE USED ON ALL DIP CONNECTIONS

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TEMPORARY WATER SAMPLER

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-432

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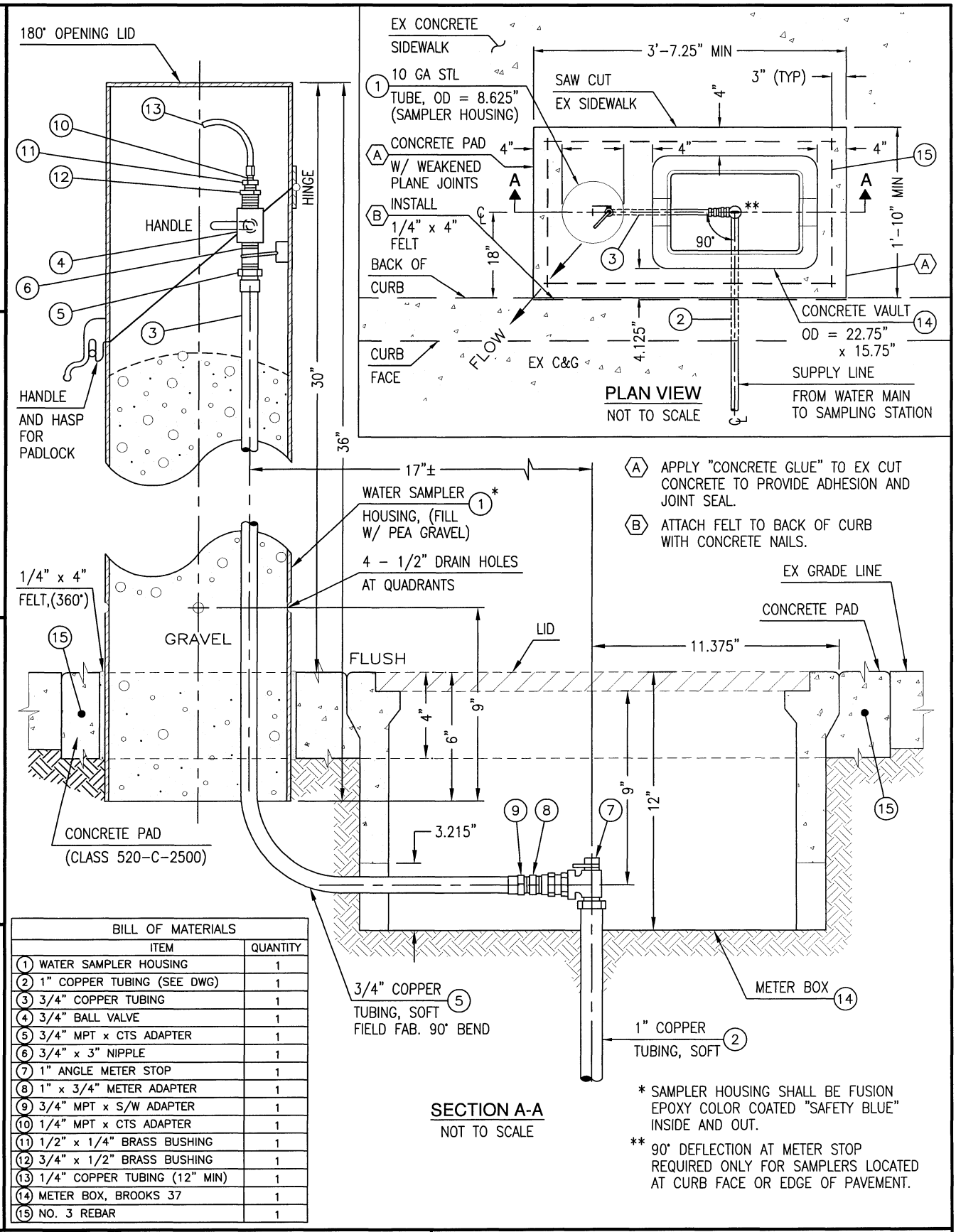


BILL OF MATERIALS	
ITEM	QUANTITY
(1) WATER SAMPLER HOUSING	1
(2) 1" COPPER TUBING (SEE DWG)	1
(3) 3/4" COPPER TUBING	1
(4) 3/4" BALL VALVE	1
(5) 3/4" MPT x CTS ADAPTER	1
(6) 3/4" x 3" NIPPLE	1
(7) 1" ANGLE METER STOP	1
(8) 1" x 3/4" METER ADAPTER	1
(9) 3/4" MPT x S/W ADAPTER	1
(10) 1/4" MPT x CTS ADAPTER	1
(11) 1/2" x 1/4" BRASS BUSHING	1
(12) 3/4" x 1/2" BRASS BUSHING	1
(13) 1/4" COPPER TUBING (12" MIN)	1
(14) METER BOX, BROOKS 37	1
(15) NO. 3 REBAR	1

SECTION A-A
NOT TO SCALE

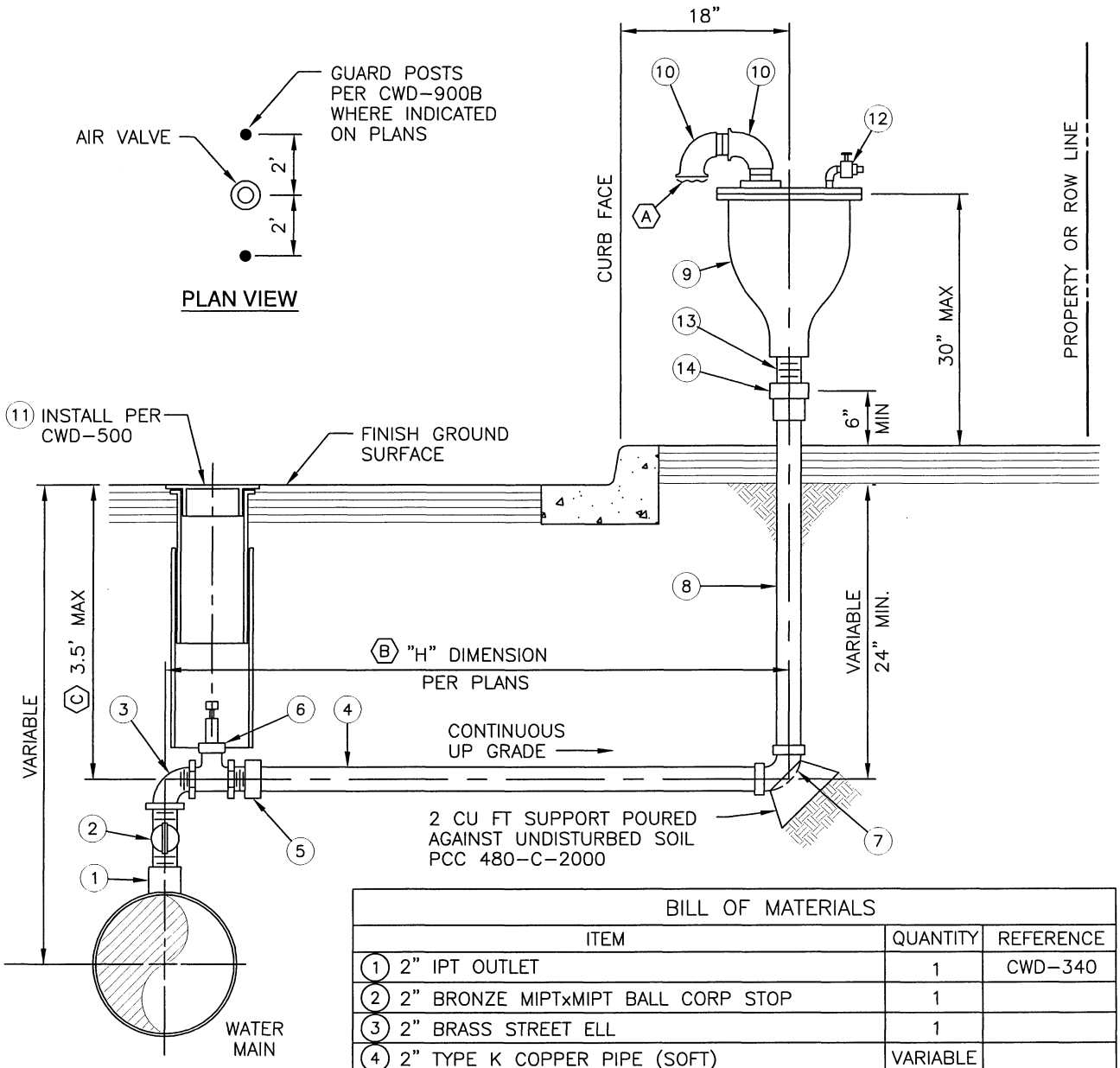
* SAMPLER HOUSING SHALL BE FUSION EPOXY COLOR COATED "SAFETY BLUE" INSIDE AND OUT.

** 90° DEFLECTION AT METER STOP REQUIRED ONLY FOR SAMPLERS LOCATED AT CURB FACE OR EDGE OF PAVEMENT.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

WATER QUALITY SAMPLING STATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-433



NOTES:

(A) A 1/8" SQ MESH GALVANIZED SCREEN SHALL BE EPOXIED FLAT INTO OPEN ST ELL.

(B) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

(C) USE 2" COPPER PIPE BETWEEN CORP STOP AND ELL TO ADJUST DEPTH – IF NEEDED.

(C) DOUBLE-STRAP SERVICE SADDLES SHALL BE USED ON ALL DIP CONNECTIONS.

BILL OF MATERIALS

ITEM	QUANTITY	REFERENCE
(1) 2" IPT OUTLET	1	CWD-340
(2) 2" BRONZE MIPTxMIPT BALL CORP STOP	1	
(3) 2" BRASS STREET ELL	1	
(4) 2" TYPE K COPPER PIPE (SOFT)	VARIABLE	
(5) 2" SW x IPM BRONZE ADAPTER	1	
(6) 2" BRONZE GATE VALVE NRS	1	CWD-500
(7) 2" SW x SW 90° ELL	1	
(8) 2" HARD DRAWN COPPER PIPE, TYPE K	VARIABLE	
(9) 2" UNIVERSAL AIR VALVE	1	
(10) 2" GALV STREET ELL – SEE NOTE A	2	
(11) 8" GATE VALVE CAP, GALV SPLIT SLEEVE, & 12 GA STL PIPE	1	CWD-515
(12) 1/4" BRASS GATE VALVE, 1/4" BRASS PLUG, 1/4" x 2" BRASS NIPPLE, 1/4" BRASS STREET ELL	1 EA	
(13) 2"ø x 6" NIPPLE	1 EA	
(14) 2" SW x IPF BRONZE ADAPTER	1 EA	

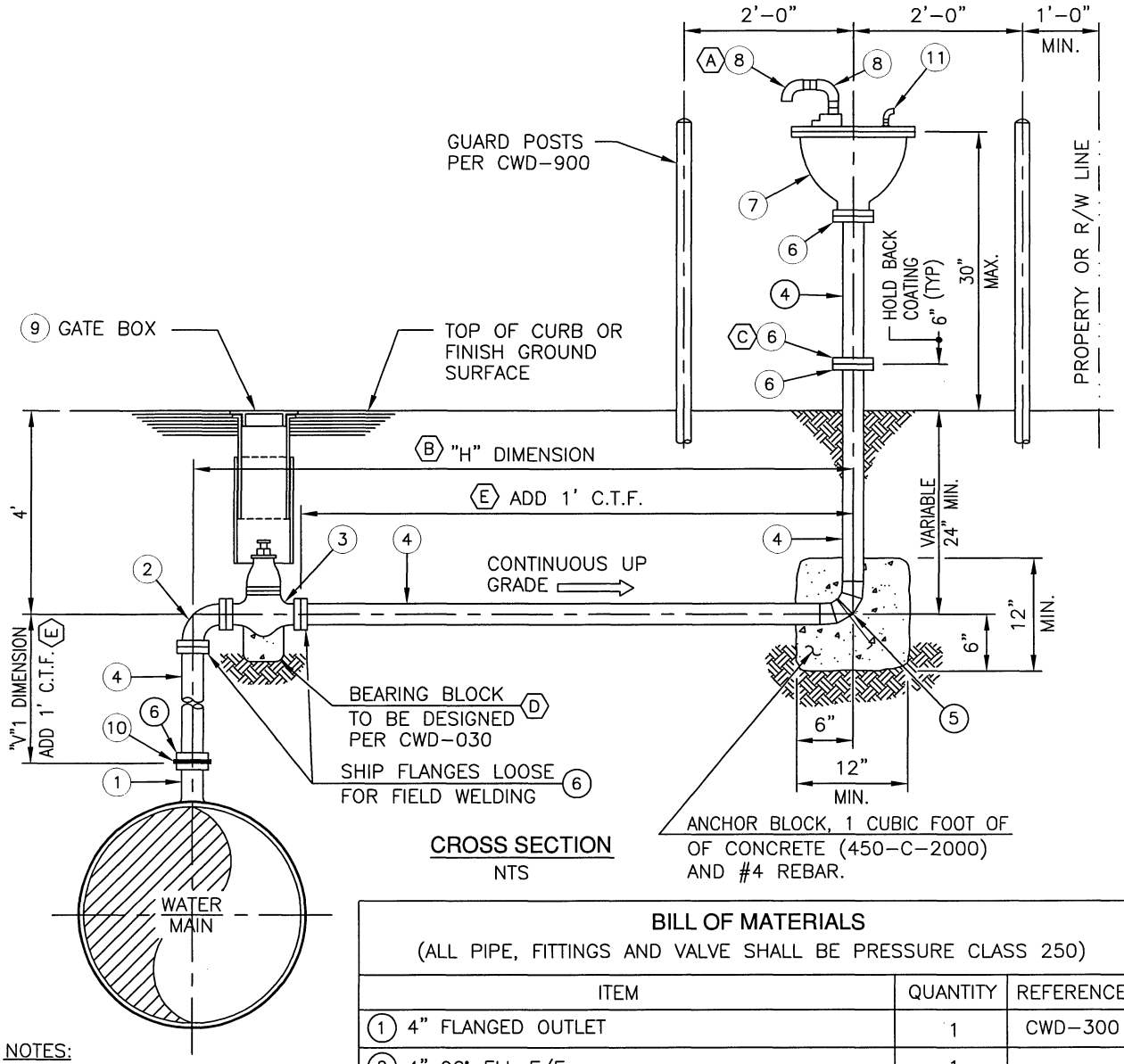
APPROV.	CHECK	DATE	DRAWN	
				0
		6-00	RGM	
				1
				2
				3

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 2" AIR VALVE INSTALLATION

RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: JAN 2003 | CWD-451

APPROV.	CHECK	DATE	DRAWN	
				3
				2
				1
		1-03	RGM	0



CROSS SECTION
NTS

NOTES:

(A) A 1/8" SQ. MESH, GALVANIZED SCREEN, SHALL BE EPOXIED INTO OPEN STREET ELL.

(B) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

(C) BREAK-OFF BOLTS, PER SPECIFICATION

(D) BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500

(E) HOLD BACK COATING 12"

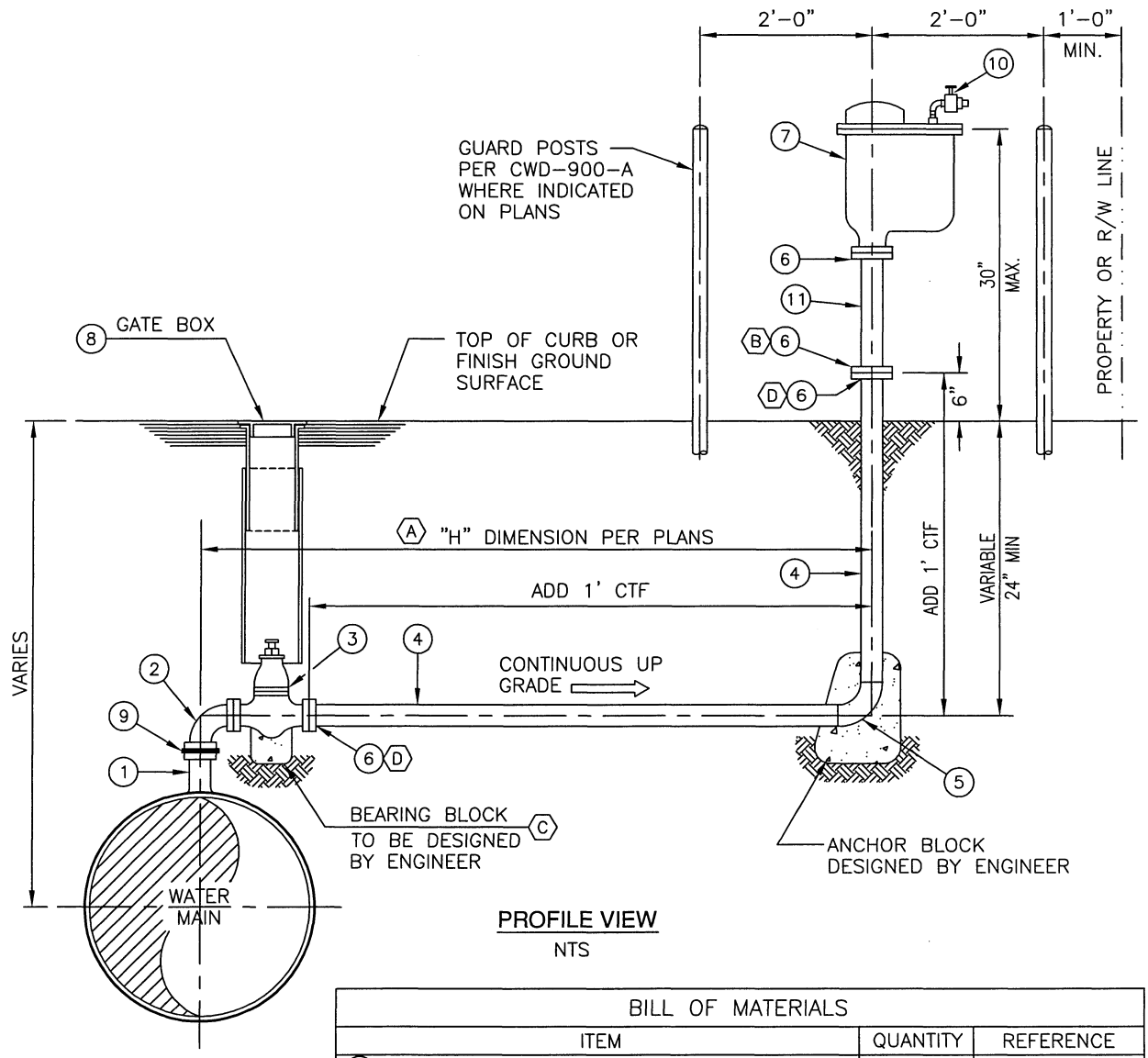
BILL OF MATERIALS
(ALL PIPE, FITTINGS AND VALVE SHALL BE PRESSURE CLASS 250)

ITEM	QUANTITY	REFERENCE
(1) 4" FLANGED OUTLET	1	CWD-300
(2) 4" 90° ELL F/F	1	
(3) 4" R.W. GATE VALVE F/F	1	CWD-500
(4) 4" M.L.&C. STL. PIPE, 10 GA. 4" I.D., 5/16" C.M.L., 3/4" C.M.C.	VARIABLE	
(5) 4" - 4 PC. 90° ELL (WELD)	1	
(6) 4" WELDED FLANGE	6	
(7) 4" UNIVERSAL AIR VALVE	1	
(8) 4" GALV. STREET ELL	2	
(9) 8" GATE BOX CAP, GALV. SPLIT-SLEEVE, AND 12 GA. STL. PIPE	1	CWD-515
(10) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS	1	
(11) 1/2" BRASS G.V.. 1/2" x 2" BRASS NIPPLE, 1/2" BRASS STREET ELL	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 4" AIR VALVE INSTALLATION

RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: JAN 2003 | CWD-460



PROFILE VIEW
NTS

NOTES:

(A) STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

(B) BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED. INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.

(C) BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500

(D) HOLD BACK COATING 18"

BILL OF MATERIALS

ITEM	QUANTITY	REFERENCE
(1) 6" FLANGED OUTLET	1	CWD-300
(2) 6" 90° ELL F/F	1	
(3) 6" RW GATE VALVE F/F	1	CWD-500
(4) 6" ML&C STL PIPE, 10 GA 6" ID, 5/16" CML, 3/4" CMC	VARIABLE	
(5) 6" - 90° WELD ELL	1	
(6) 6" WELD FLANGE, SHIP FLG LOOSE	6	
(7) 6" COMBINATION AIR VALVE, PER SPEC	1	
(8) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	1	CWD-515
(9) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS	1	
(10) 1/2" BRASS GV, 1/2" x 2" BRASS NIPPLE, 1/2" BRASS STREET ELL, 1/2" BRASS PLUG	1 EA	
(11) 6" DIA X 12" STL SPOOL, PE X PE, ML & NO COATING	1	

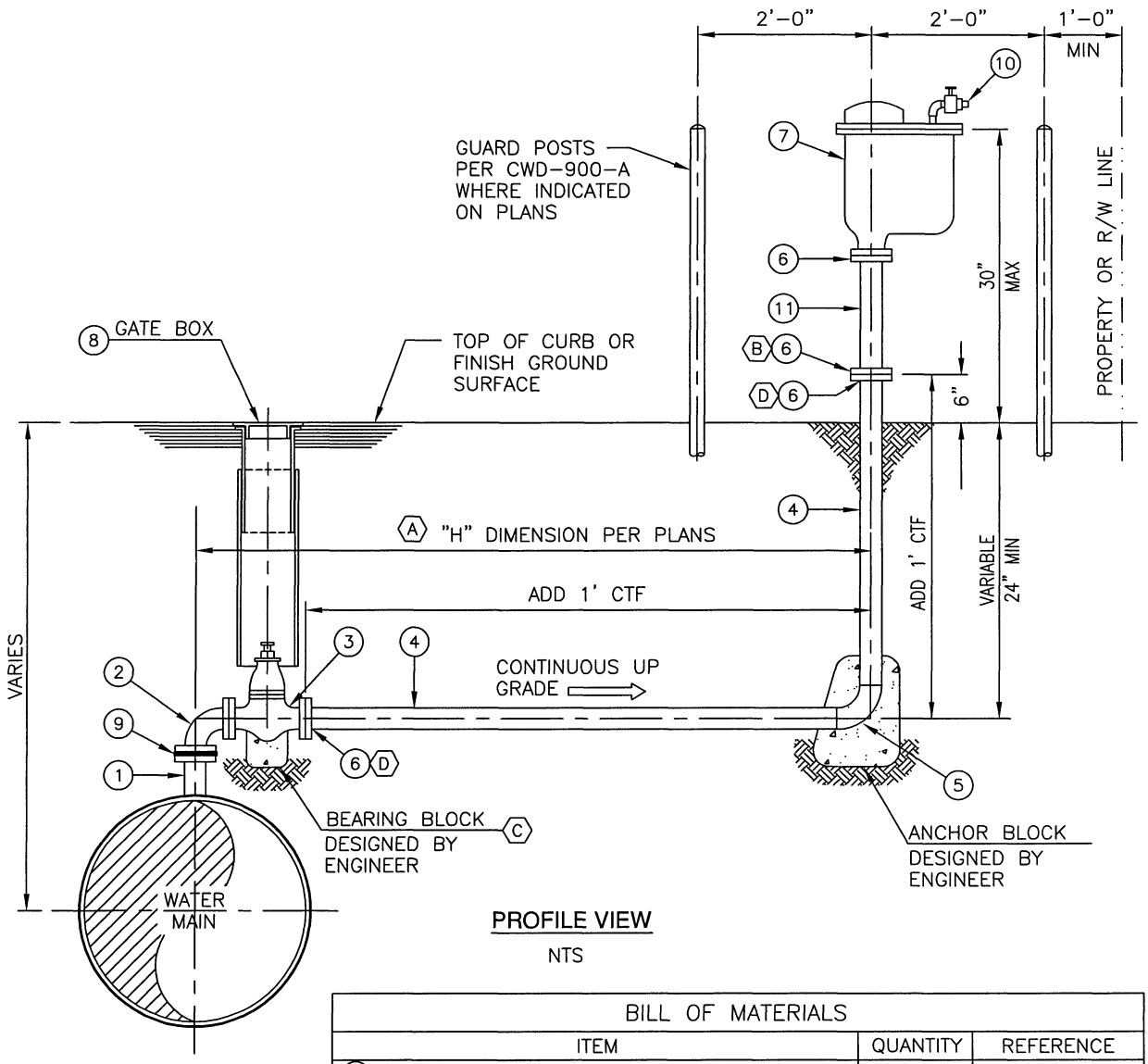
APPROV.	CHECK	DATE	DRAWN	
			WEF	0
		03-04		1
				2
				3

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 6" AIR VALVE INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWINGS | DATE: MAR 2004 | CWD-462

0	DRAWN WEF	DATE 03-04	CHECK	APPROV.
1	DRAWN	DATE	CHECK	APPROV.
2	DRAWN	DATE	CHECK	APPROV.
3	DRAWN	DATE	CHECK	APPROV.



PROFILE VIEW

NTS

NOTES:

Ⓐ STATION, LOCATION, AND SPECIAL NOTES PER PLAN AND PROFILE SHEETS.

Ⓑ BREAK-OFF BOLTS, CADMIUM-PLATED OR GALVANIZED. INSTALL WITH NUT ON TOP AND COUNTER-BORE, PACKED WITH SILICONE.

Ⓒ BEARING BLOCK SHALL NOT REST ON MAIN AND SHALL BE NOTCHED ON BOTH SIDES PER CWD-500

Ⓓ HOLD BACK COATING 18".

BILL OF MATERIALS

ITEM	QUANTITY	REFERENCE
(1) 8" FLANGED OUTLET	1	CWD-300
(2) 8" 90° ELL F x F	1	
(3) 8" RW GATE VALVE F x F	1	CWD-500
(4) 8" ML&C STL PIPE, 10 GA 8" ID, 5/16" CML, 3/4" CMC	VARIABLE	
(5) 8" – 90° WELD ELL	1	
(6) 8" WELD FLANGE, SHIP LOOSE	6	
(7) 8" COMBINATION AIR VALVE, PER SPEC	1	
(8) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	1	CWD-515
(9) FLANGE INSULATION KIT AS REQUIRED PER SPECIFICATIONS	1	
(10) 1/2" BRASS GV 1/2" x 2" BRASS NIPPLE, 1/2" BRASS STREET ELL, 1/2" BRASS PLUG	1 EA	
(11) 8" DIA X 12" STL SPOOL, PE X PE, ML & NO COATING	1	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL 8" AIR VALVE INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-465

APPROV.	CHECK	DATE	DRAWN	
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APPROV.	CHECK	DATE	DRAWN	
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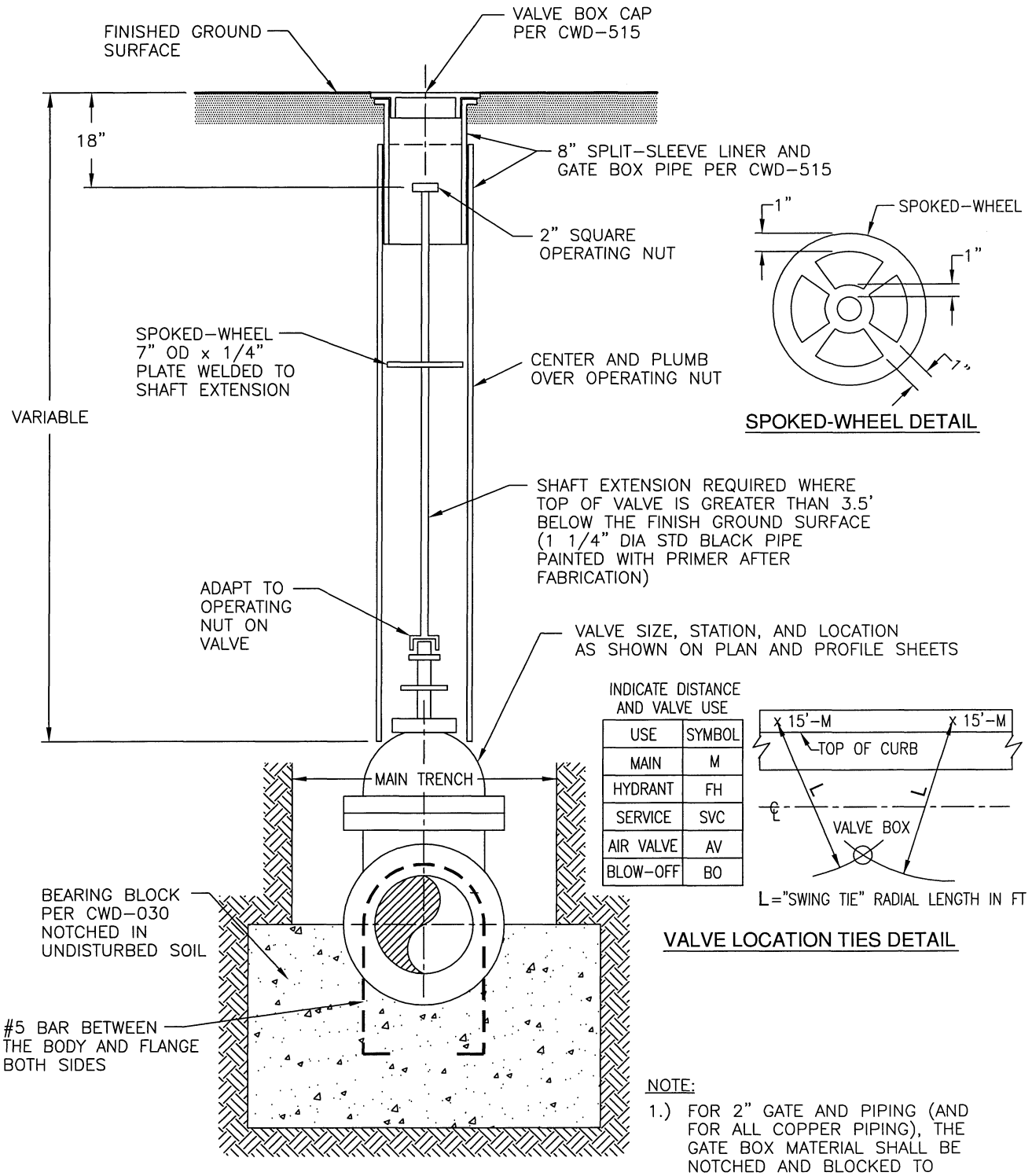
APPROVE.	CHECK	DATE	DRAWN	
				1
APPROV.	CHECK	DATE	DRAWN	
		03-04	WEF	0



SPOKED-WHEEL DETAIL

VALVE LOCATION TIES DETAIL

VALVE BOX SECTIONAL DETAIL

NOTE:

1.) FOR 2" GATE AND PIPING (AND FOR ALL COPPER PIPING), THE GATE BOX MATERIAL SHALL BE NOTCHED AND BLOCKED TO CLEAR SAME.

2.) GATE VALVES ARE TO BE INSTALLED IN THE VERTICAL POSITION UNLESS THEY ARE DESIGNED TO OPERATE IN OTHER POSITIONS.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL VALVE BOX FOR GATE VALVES

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-500

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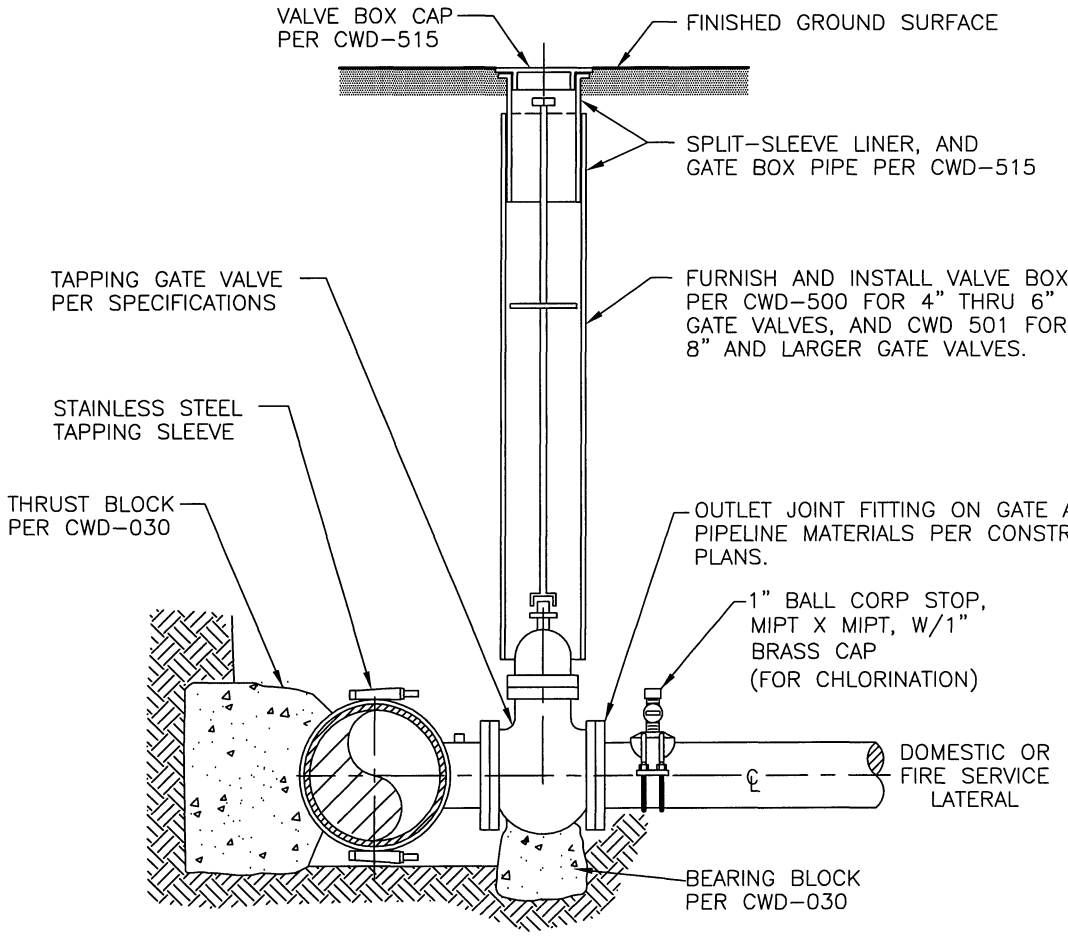
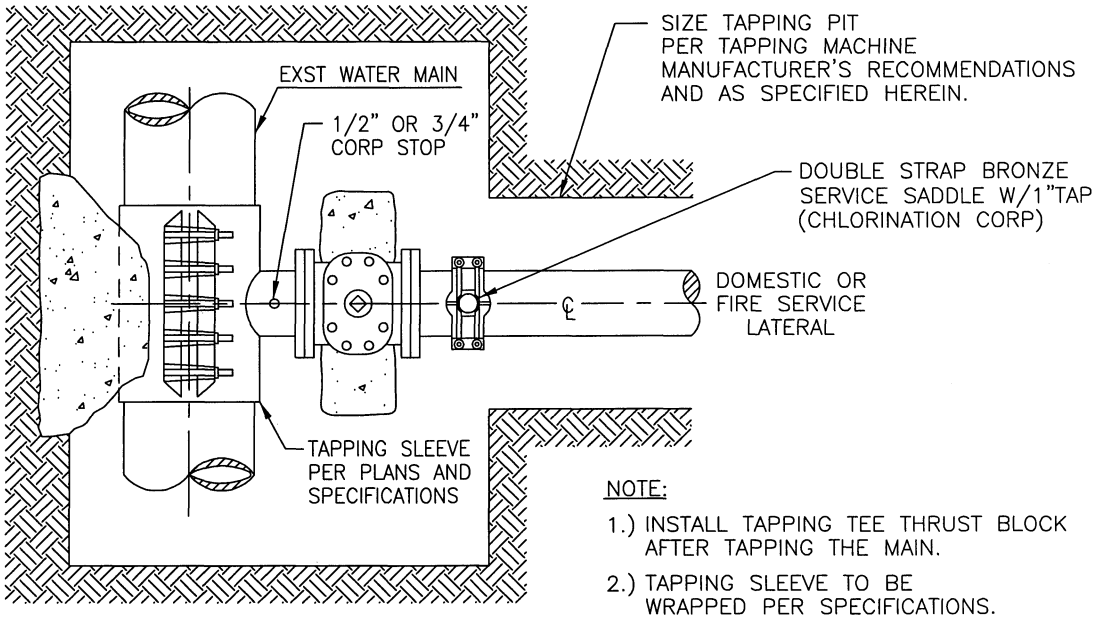


SECTIONAL VIEW



PLAN VIEW

NOTE:

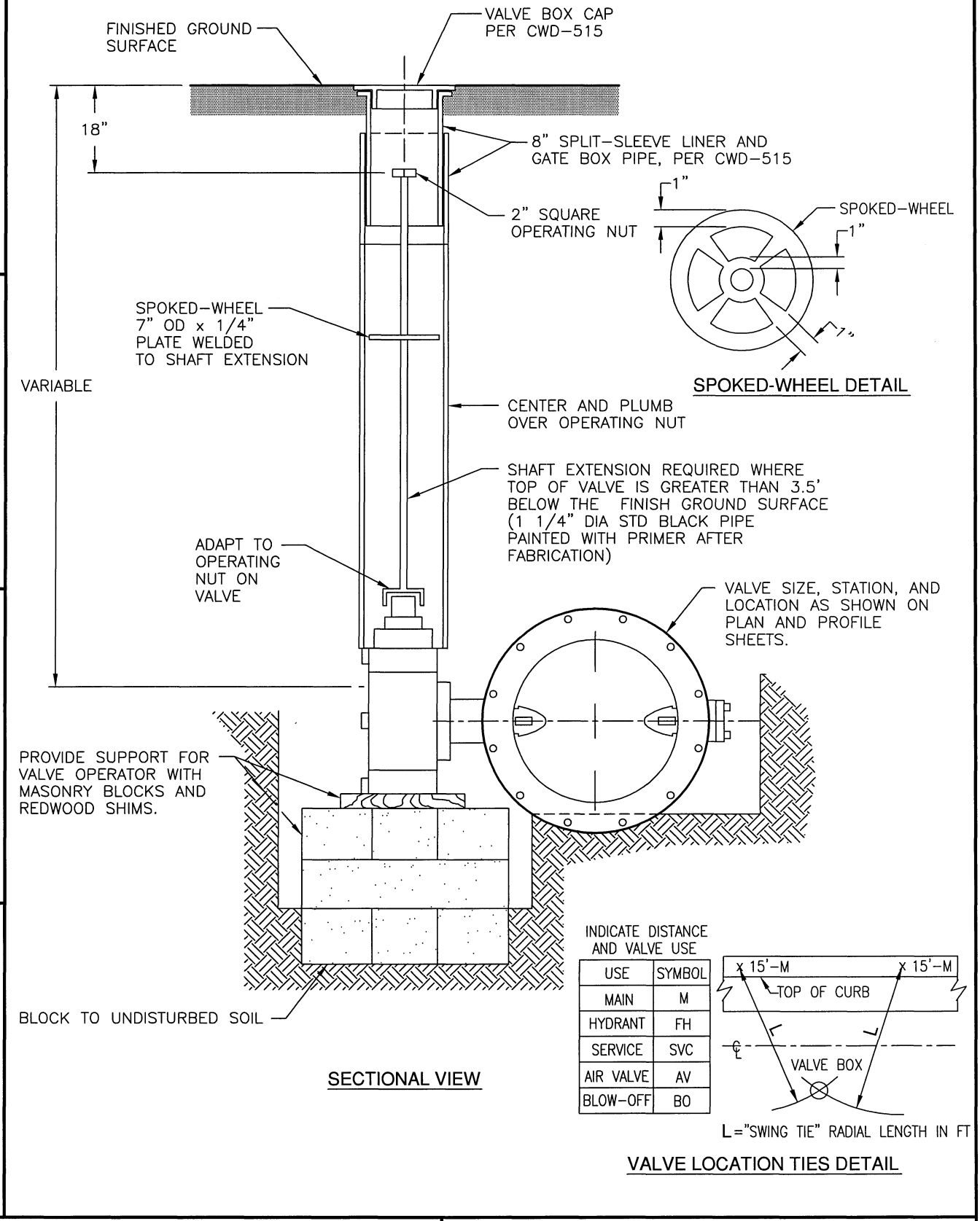
1.) INSTALL TAPPING TEE THRUST BLOCK AFTER TAPPING THE MAIN.

2.) TAPPING SLEEVE TO BE WRAPPED PER SPECIFICATIONS.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TAPPING SLEEVE AND TAPPING VALVE DETAIL FOR DOMESTIC AND FIRE SERVICES

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-504



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1	DRAWN	DATE	CHECK	APPROV.
2	DRAWN	DATE	CHECK	APPROV.
3	DRAWN	DATE	CHECK	APPROV.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL VALVE BOX FOR BUTTERFLY VALVES

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-510

	DRAWN	DATE	CHECK	APPROV.
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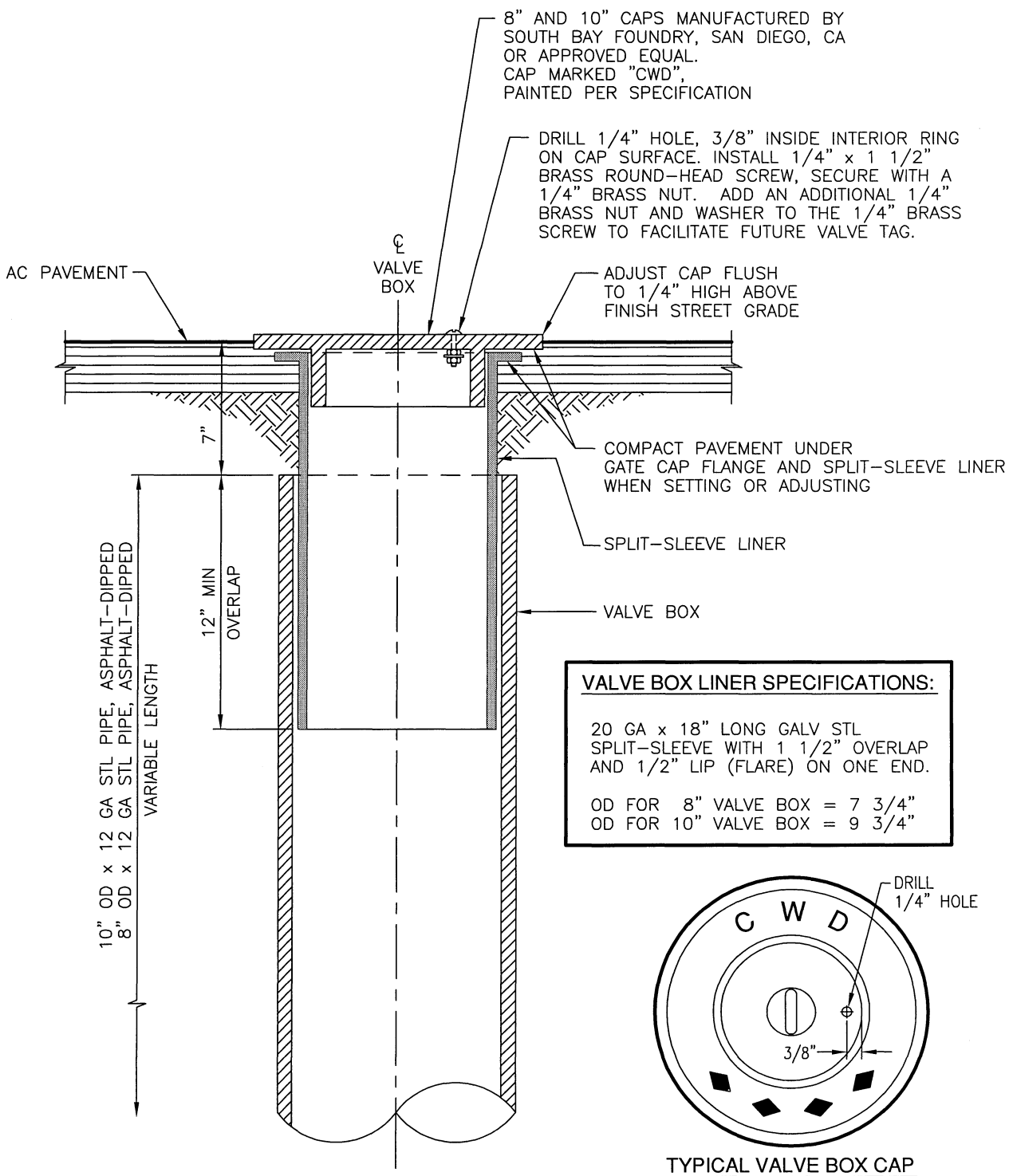

SECTIONAL DETAIL

VALVE BOX LINER SPECIFICATIONS:

20 GA x 18" LONG GALV STL SPLIT-SLEEVE WITH 1 1/2" OVERLAP AND 1/2" LIP (FLARE) ON ONE END.

OD FOR 8" VALVE BOX = 7 3/4"
OD FOR 10" VALVE BOX = 9 3/4"

TYPICAL VALVE BOX CAP

NOTES:

1.) THIS STANDARD IS TO BE USED IN CONJUNCTION WITH STANDARD DRAWINGS CWD-500, CWD-504, AND CWD-510.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL SPLIT-SLEEVE LINER AND CAP FOR 8" AND 10" VALVE BOX

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004	CWD-515

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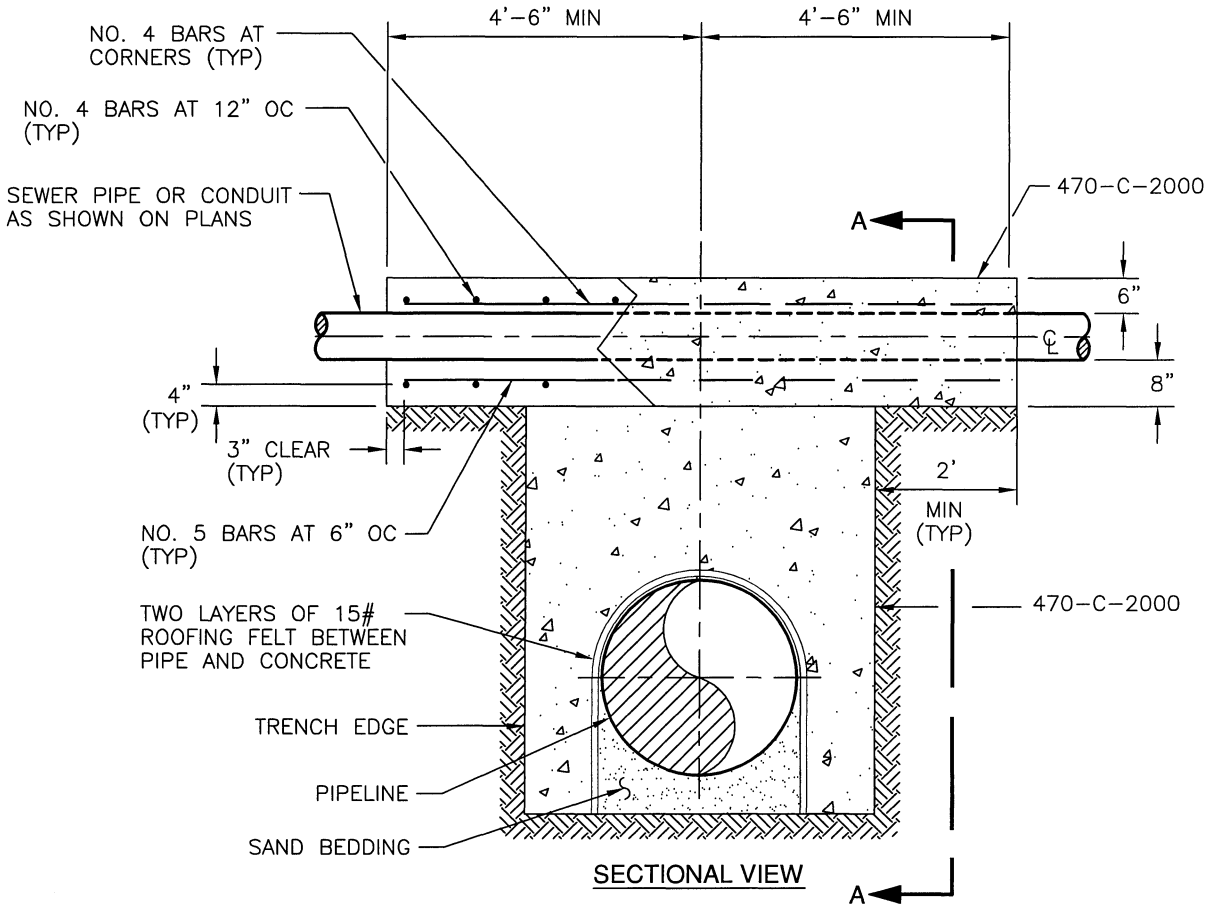
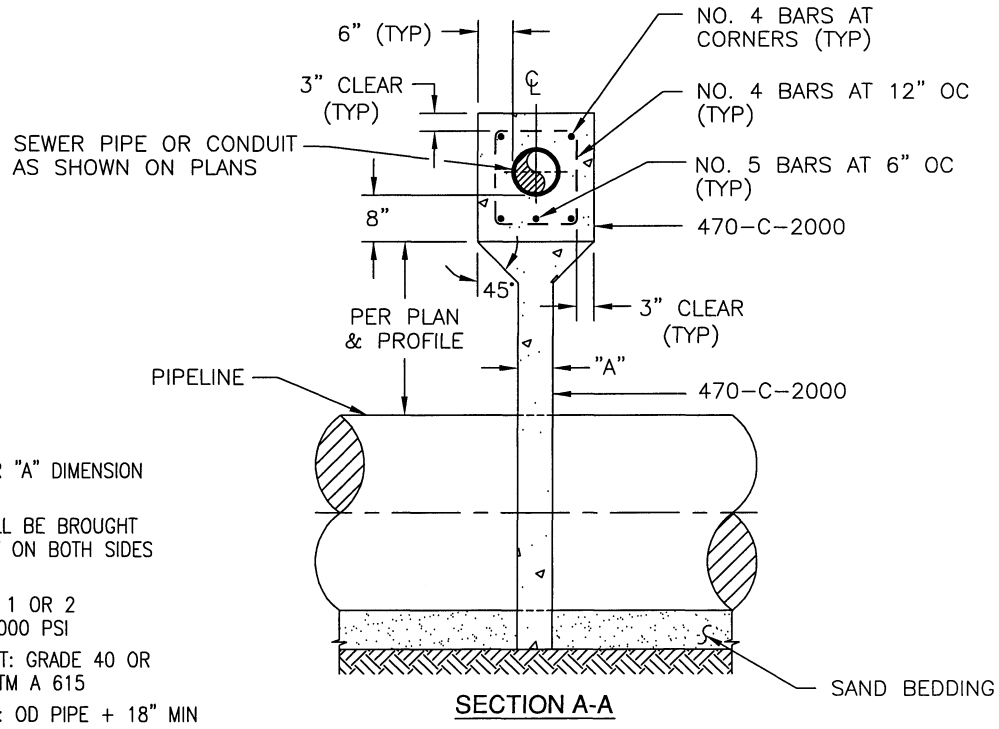
0		CHECK	DATE 03-04	DRAWN WEF





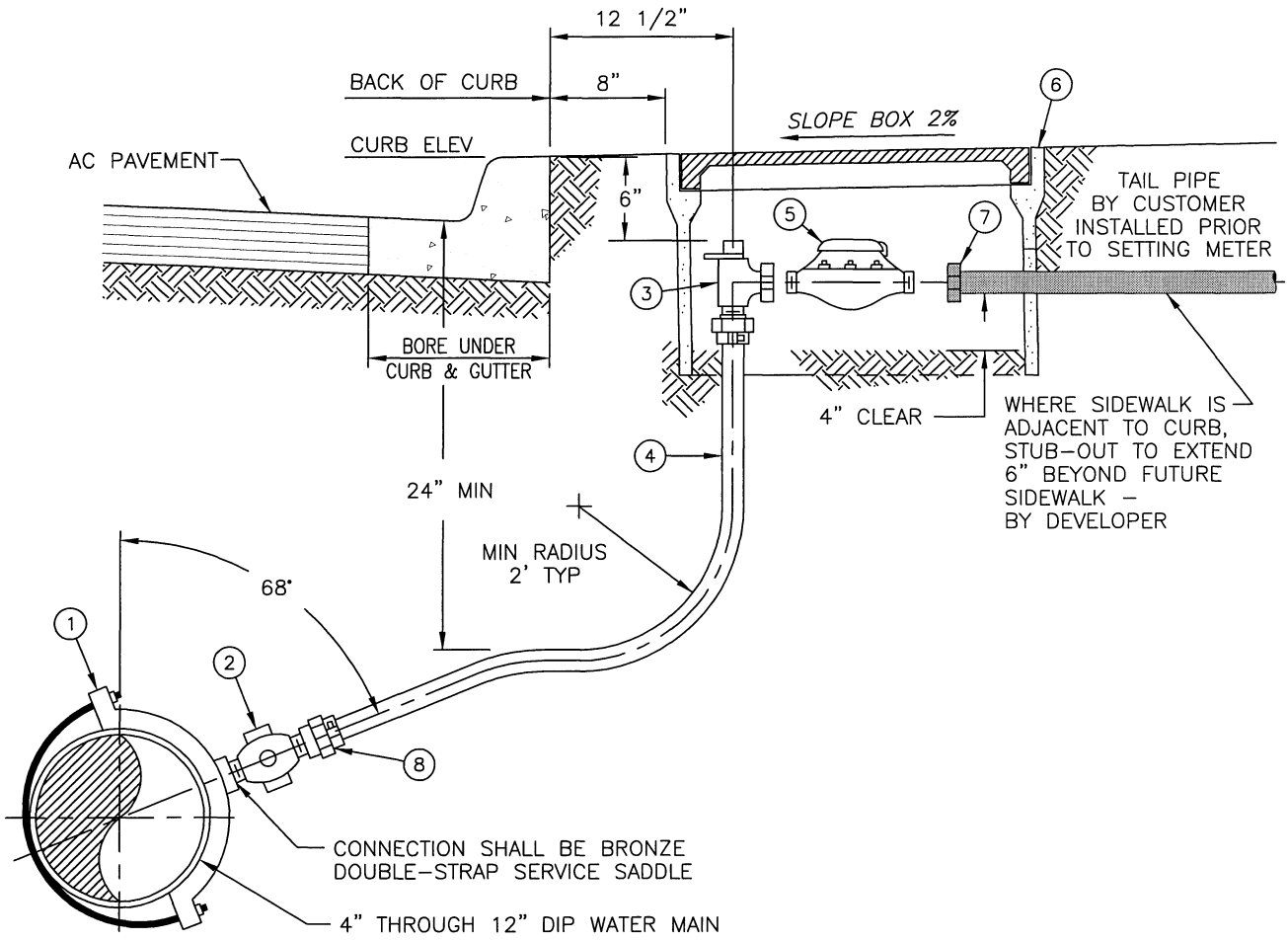
NOTES

1.) SEE PLAN FOR "A" DIMENSION (8" MIN)
2.) BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF WALL.
3.) CEMENT: TYPE 1 OR 2 ASTM 5150, 2000 PSI
4.) REINFORCEMENT: GRADE 40 OR GRADE 60, ASTM A 615
5.) TRENCH WIDTH: OD PIPE + 18" MIN

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TYPICAL CONDUIT SUPPORT

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-570



TYPICAL STREET INSTALLATION

BILL OF MATERIALS	
ITEM	QUANTITY
(1) BRONZE DOUBLE-STRAP SERVICE SADDLE (IPT)	1
(2) 1" BRONZE MIPT x MIPT BALL CORP STOP	1
(3) ANGLE BALL METER STOP COMPRESSION x METER COUPLING (WITH 1" x 3/4" ADAPTER FOR 3/4" METER) PER SPECIFICATIONS	1
(4) 1" TUBING, SOFT COPPER, TYPE K)	VARIES
(5) METER INSTALLED BY CITY FORCES	
(6) METER BOX PER SPECIFICATIONS AND/OR PLANS.	1
(7) 1" OR 3/4" COUPLINGS	
(8) 1" FIPT x COMPRESSION ADAPTOR	1

NOTES:

1.) METER BOX COVER TO BE CAST IRON WHERE BOX IS IN ALLEY OR DRIVEWAY.

2.) CONTRACTOR SHALL INSTALL METER BOXES WITH READING HOLE AT TIME ANGLE METER STOPS ARE INSTALLED.

3.) CITY WILL FURNISH A TEMPORARY SERVICE METER JUMPER, PRIOR TO INSTALLING METER, UPON PAYMENT OF FEES.

4.) METER BOX TO BE CLEANED BEFORE NEW METER CAN BE INSTALLED BY CITY FORCES.

APPROV.	CHECK	DATE	DRAWN	
				3
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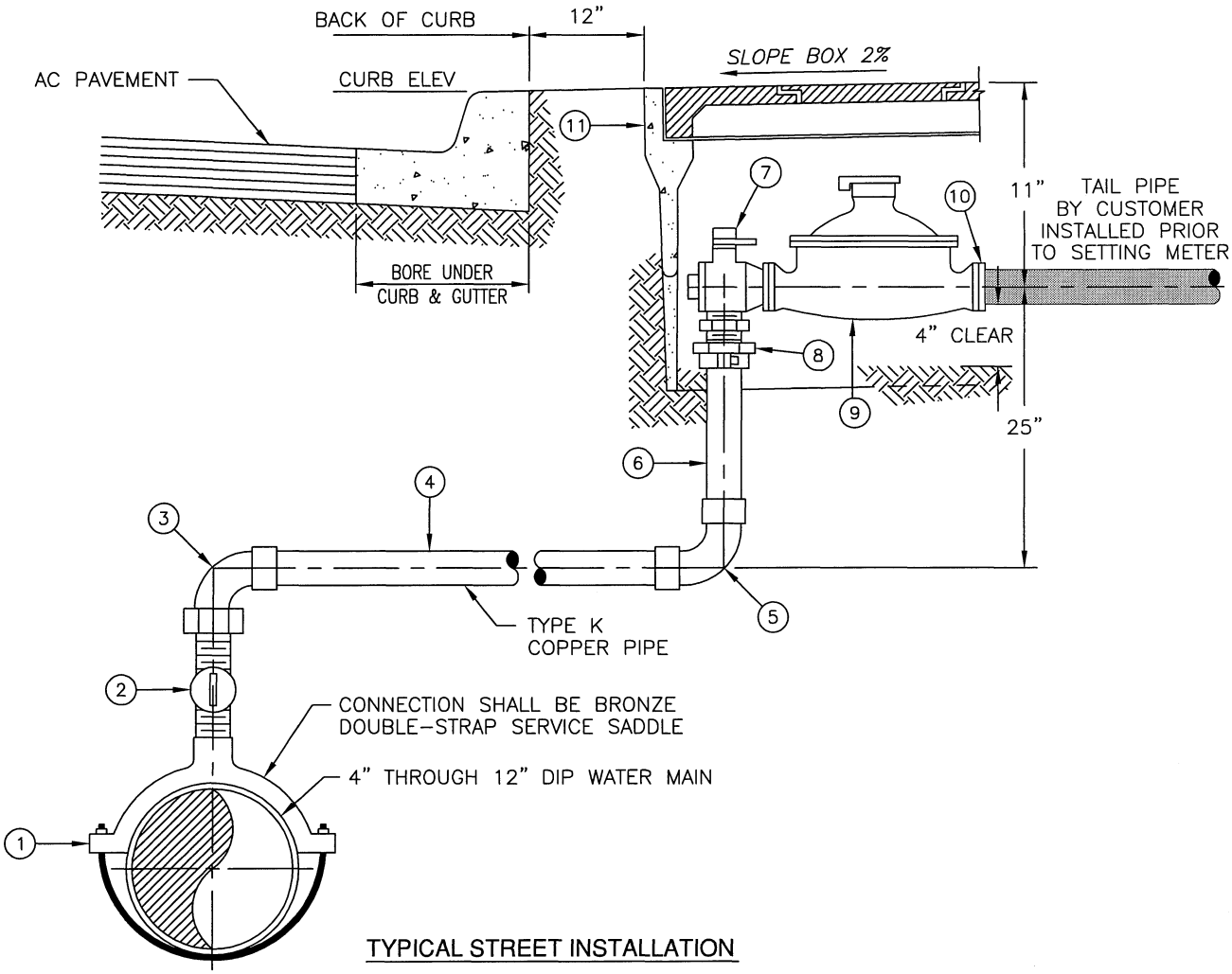
				1
APPROV.	CHECK	DATE	DRAWN	
		03-04	WEF	0

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

1-INCH WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-600



TYPICAL STREET INSTALLATION

BILL OF MATERIALS	
ITEM	QUANTITY
(1) BRONZE DOUBLE-STRAP SERVICE SADDLE (IPT)	1
(2) 2" BALL CORPORATION STOP MIPT x MIPT	1
(3) 2" FIPT/SW BRASS 90° ELL	1
(4) 2" TYPE K COPPER PIPE (SOFT)	VARIABLE
(5) 2" SW/SW COPPER 90° ELL	1
(6) RISER PIPE (2" HARD DRAWN COPPER)	1
(7) 2" ANGLE BALL METER STOP (IPF x METER FLG)	1
(8) 2" COUPLING (COMP x MIPT)	1
(9) 1 1/2" OR 2" METER (INSTALLED BY CITY)	1
(10) 1 1/2" OR 2" METER FLANGE (INSTALLED BY CITY)	1
(11) METER BOX: CONCRETE COVER 2 PC OR STEEL COVER 2 PC	1

NOTES:

1.) A STEEL METER BOX LID IS REQUIRED IN ALLEY OR DRIVEWAY.

2.) DOUBLE GASKETS SHALL BE USED ON EACH SIDE OF METER SPACER (JUMPER) UNTIL METER IS INSTALLED BY CITY.

0	DRAWN WEF	DATE 03-04	CHECK	APPROV.
1	DRAWN	DATE	CHECK	APPROV.
2	DRAWN	DATE	CHECK	APPROV.
3	DRAWN	DATE	CHECK	APPROV.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

2-INCH WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-601

	DRAWN	DATE	CHECK	APPROV.
0	WEF	03-04		
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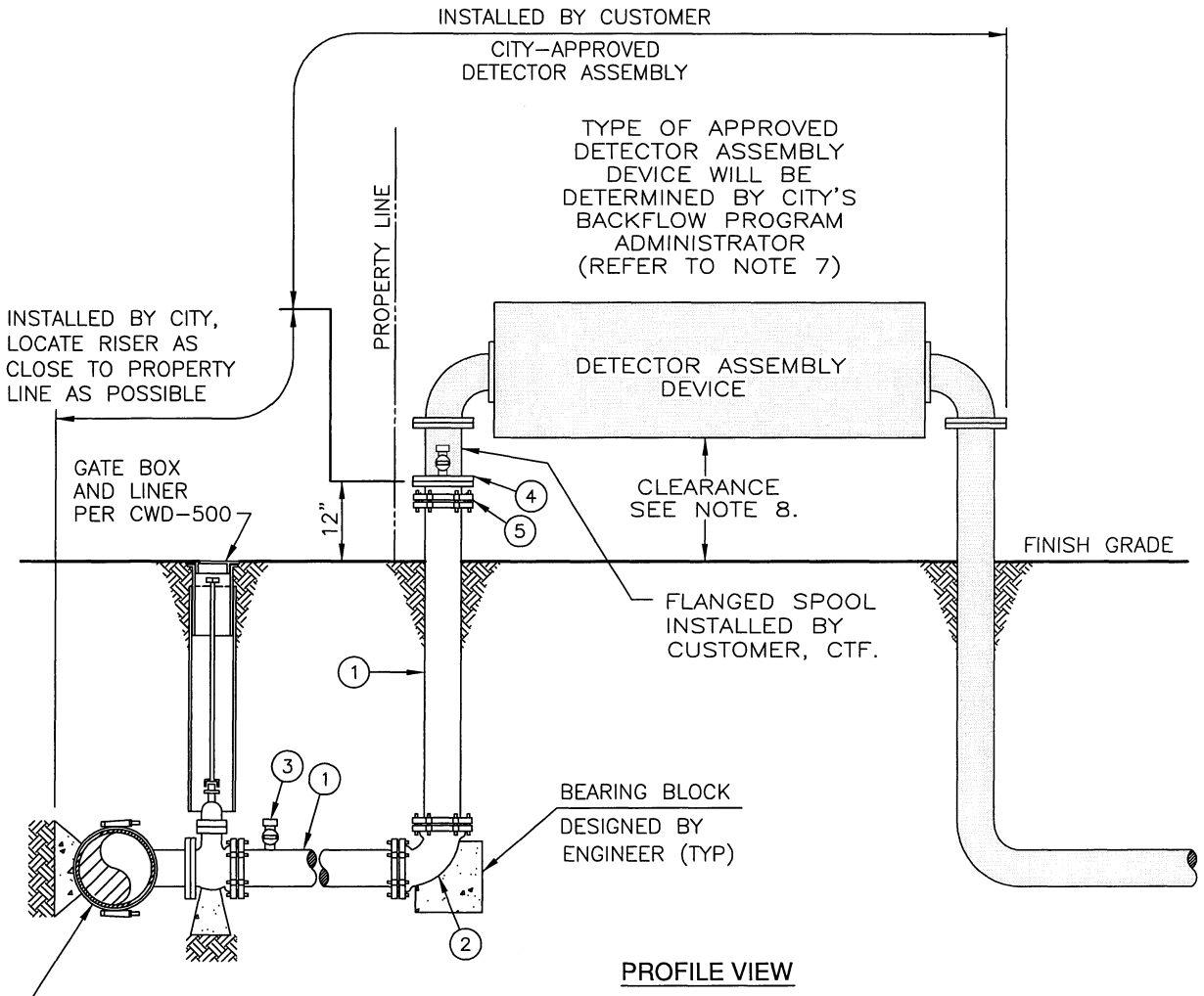


PROFILE VIEW

MATERIALS	
ITEM	
1	DUCTILE IRON PIPE (CLASS 350)
2	90° ELL
3	1" BALL CORPORATION STOP INLET FOR CHLORINATION POINT TO BE CLOSED AND CAPPED AFTER SUCCESSFUL DISINFECTION.
4	TEMPORARY BLIND FLANGE WITH 1" IPT TAP AND 1" BALL CORPORATION STOP FOR SAMPLE.
5	FLANGE X MECHANICAL JOINT ADAPTOR, AS REQUIRED.

NOTES

1.) PRIME AND WRAP BURIED PIPE TO 6" ABOVE GRADE WITH POLYKEN #927 AND #900, OR APPROVED EQUAL.

2.) CITY FORCES WILL BLIND FLANGE CONNECTION POINT. WATER INSPECTOR IS TO BE PRESENT WHEN BLIND FLANGE IS REMOVED AND DETECTOR ASSEMBLY IS INSTALLED.

3.) FACILITIES TO BE DISINFECTED PER SPECIFICATION 205, PART 5.

4.) CUSTOMER TO SWAB CONNECTING VALVES WITH 600 PPM CHLORINE WHEN MAKING CONNECTION.

5.) CUSTOMER TO PAINT ALL ABOVE GRADE PIPING AND DETECTOR ASSEMBLY.

6.) FOR 10" DETECTOR ASSEMBLY INSTALL 12" LATERAL AND PIPING. CUSTOMER TO SUPPLY 12" x 10" FLANGED REDUCERS ON BOTH SIDES OF DETECTOR ASSEMBLY.

7.) CONTACT CITY BACKFLOW ADMINISTRATOR FOR DETECTOR ASSEMBLY SPECIFICATION, AND FOR INSPECTION AND TESTING IMMEDIATELY AFTER INSTALLATION AT (909)351-6320.

8.) FOR DETECTOR ASSEMBLY CLEARANCE REQUIREMENTS REFER TO CWD-630-1 AND CWD-630-2.

9.) RESTRAIN ALL JOINTS WITH APPROVED RESTRAINT ASSEMBLY.

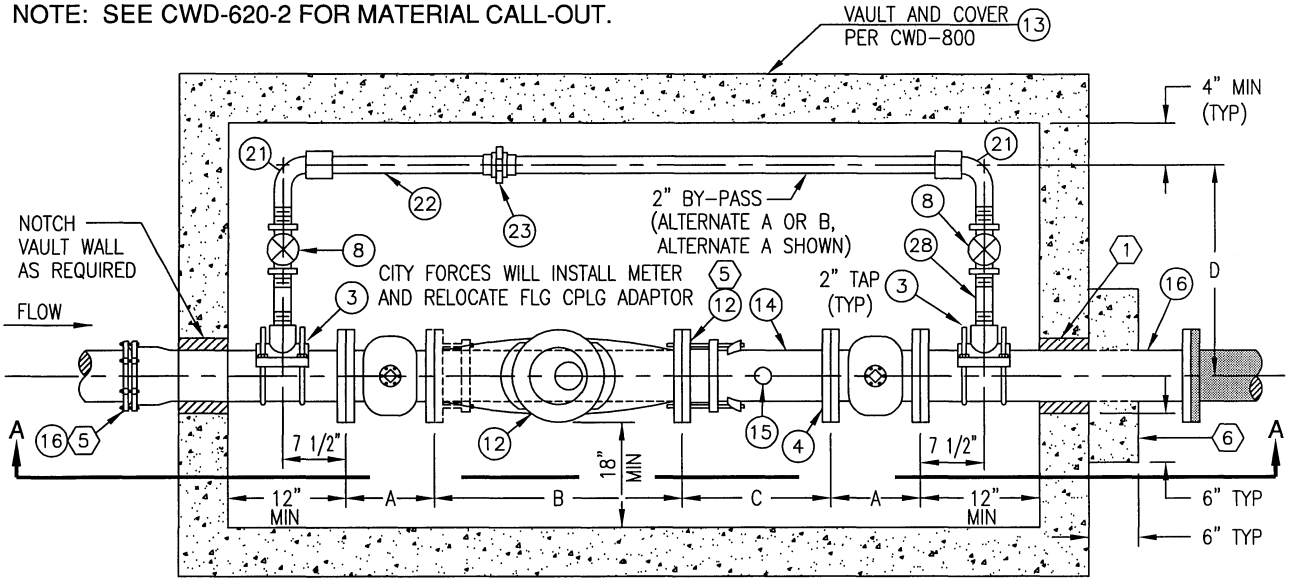
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

4" THRU 10" ABOVE GROUND FIRE SERVICE

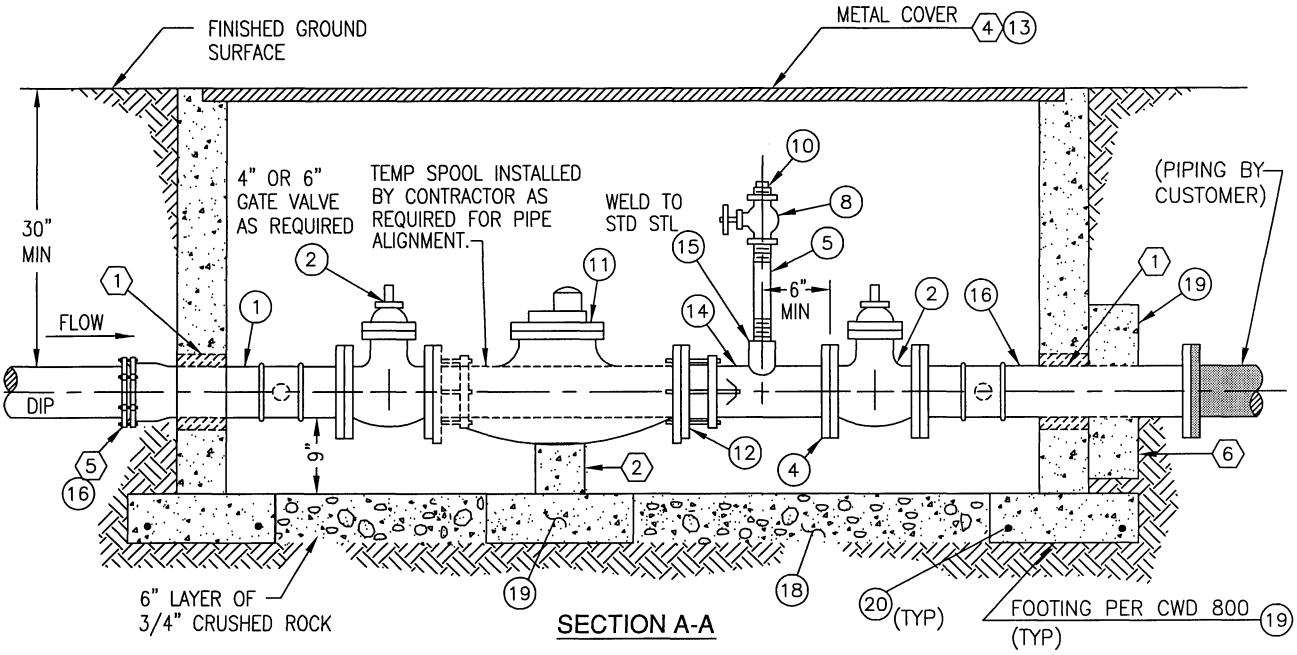
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-615

APPROV.	CHECK	DATE	DRAWN	
				3
APPROV.	CHECK	DATE	DRAWN	
				2
APPROV.	CHECK	DATE	DRAWN	
				1
APPROV.	CHECK	DATE	DRAWN	
		03-04	WEF	0

NOTE: SEE CWD-620-2 FOR MATERIAL CALL-OUT.



PLAN VIEW



SECTION A-A

GENERAL NOTES:

1) CONTRACTOR SHALL PAINT PIPING PRIOR TO INSTALLATION OF METER.

TYPICAL DIMENSIONS				
SERVICE SIZE	A	B	C	D
3 IN.	9"	24"	29"±	11"
4 IN.	9"	24"	24±	11 1/2"
6 IN.	10 1/2"	36 1/2"	13"±	12 1/2"

CONSTRUCTION NOTES:

(1) DRY-PACK PIPE OPENINGS.

(2) SUPPORT COMPOUND METER ON CONCRETE PAD WITH CONCRETE BLOCK.

(3) CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CUSTOMER", INCLUDING TEMPORARY FLANGED COUPLING CONNECTION AT INFLUENT VALVE.

(4) ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER SECTION 310.

(5) PROVIDE JOINT RESTRAINTS PER CONSTRUCTION SPECIFICATIONS.

(6) POUR PCC 480-C-2000 CONCRETE THRUST COLLAR AGAINST WALL OF VAULT.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

3", 4" AND 6" COMPOUND METER WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-620-1

	DRAWN	DATE	CHECK	APPROV.
3				
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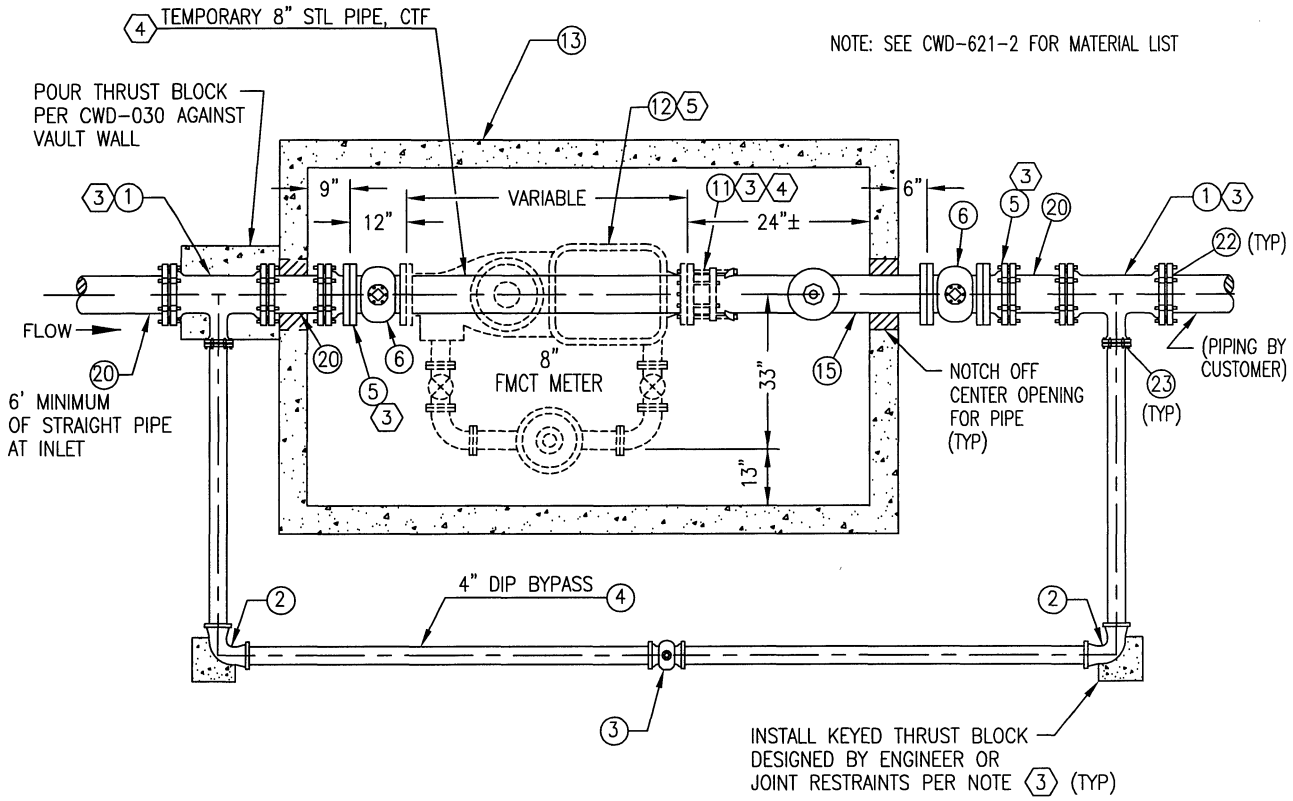
BILL OF MATERIALS

ITEM	QUANTITES 3" METER	4" METER	6" METER	REFERENCE
(1) DIA x 18" ADAPTER, FLG x MJ	1-(4" DIA)	1	1	
(2) GATE VALVE, DIA x FLG x FLG	2-(4" DIA)	2	2	
(3) DIA x 2" BRONZE SERVICE SADDLE	2-(4" DIA)	2	2	
(4) WELD FLANGE x DIA	1	1	1	
(5) 2" x 12" GALV NIPPLE	1	1	1	
(6) 4" x 3" GALV BUSHING	2	NA	NA	
(7) 3" x 6" GALV NIPPLE	1	NA	NA	
(8) 2" GATE VALVE - BRONZE	3	3	3	
(9) 4" SCREW FLANGE	2-(4" DIA)	NA	NA	
(10) 2" BRASS PLUG	1	1	1	
(11) COMPOUND METER, DIA x FLG x FLG	1	1	1	PUR REQ
(12) DIA x FLANGED COUPLING ADAPTER	1	1	1	
(13) VAULT AND COVER	1	1	1	CWD-800
(14) STEEL PIPE, DIA x (SCHEDULE 40)	3 LNR FT CTF			
(15) 2" HEAVY BLACK COUPLING	1	1	1	
(16) DIA X 36" DIP SPOOL FLG x FLG	1-(4" DIA)	1	1	
(17) 3" SCREW FLANGE	2	NA	NA	
(18) 3/4" CRUSHED ROCK	16 CU FT			
(19) CONCRETE PCC 480-C-2000	15 CU FT			
(20) NO. 4 REBAR	48 LNR FT±			
2" BY-PASS (ALT A)				
(21) 2" x 90° ELL SW x MIPT	2	2	2	
(22) 2" COPPER PIPE, SOFT	7 LNR FT ±			
(23) 2" BRASS UNION	1	1	1	
(24) 2" x 3" BRASS NIPPLE	2	2	2	
2" BY-PASS (ALT B)				
(25) 2" x 90° STREET ELL	2	2	2	
(26) 2" GALV PIPE	7 LNR FT ±			
(27) 2" GALV UNION	1	1	1	
(28) 2" x 3" GALV NIPPLE	2	2	2	

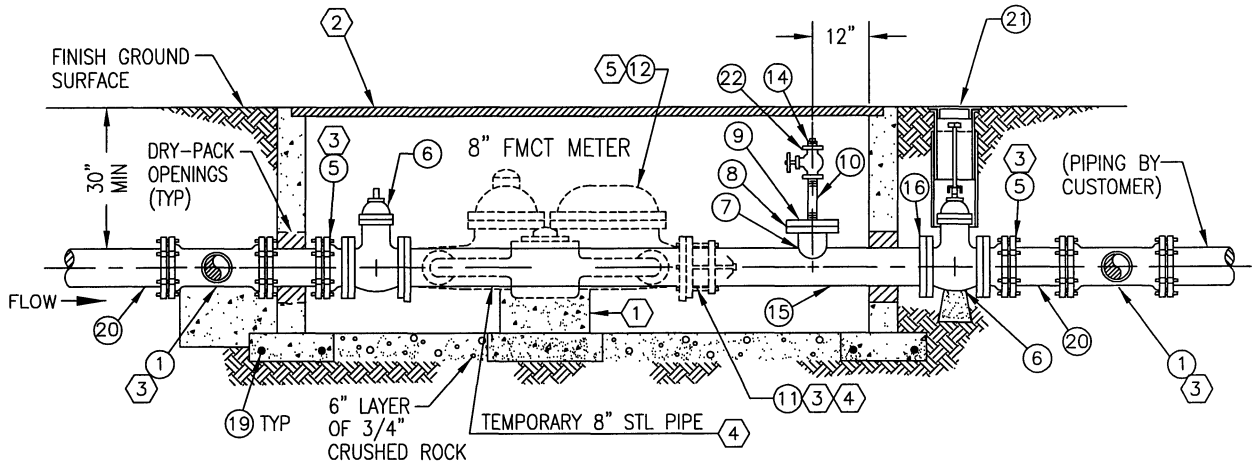
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BILL OF MATERIALS FOR 3", 4" AND 6" COMPOUND METER WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-620-2



PLAN VIEW



PROFILE VIEW

GENERAL NOTES:

1. SUPPORT METER ON CONCRETE PAD AND CONCRETE BLOCK.
2. ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER CONSTRUCTION SPECIFICATION SECTION 310.
3. PROVIDE JOINT RESTRAINTS PER CONSTRUCTION SPECIFICATION.
4. CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CUSTOMER", INCLUDING TEMPORARY FLANGE COUPLING CONNECTION AT THE INFLUENT VALVE. LOCATION.
5. CITY FORCES WILL FURNISH AND INSTALL 8" FMCT METER AND FAB METER READING LID.

0	DRAWN WEF	DATE 03-04	CHECK
1	DRAWN	DATE	CHECK
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3	DRAWN	DATE	CHECK

APPROV.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

8" FMCT WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-621-1

BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) 8" x 4" TEE MJ X MJ	2	
(2) 4" – 90° ELL B X B	2	
(3) 4" RW GATE VALVE B X B	1	
(4) 4" DI PIPE	16 FT±	
(5) 8" FLG X MJ ADAPTER	2	
(6) 8" GATE VALVE F X F	2	
(7) 6" STL PIPE (SCHEDULE 40)	1 FT	
(8) 6" WELD FLANGE	1	
(9) 6" BLIND FLANGE W/2" IPT TAP	1	
(10) 2" X 12" GALV NIPPLE	1	
(11) 8" FLANGED COUPLING ADAPTER	1	
(12) 8" COMPOUND METER	1	
(13) VAULT AND COVER	1	CWD-801
(14) 2" BRASS PLUG	1	
(15) 8" STL PIPE (SCHEDULE 40)	7 FT±	
(16) 8" WELD FLANGE	1	
(17) CONCRETE PCC 480-C-2000	20 CU FT±	
(18) 3/4" CRUSHED ROCK	28 CU FT	
(19) NO 4 REBAR	64 FT±	
(20) 8" DI PIPE	2 FT	
(21) 8" GATE BOX MATERIAL	1	CWD-500
(22) 2" GATE VALVE – BRONZE	1	

	DRAWN	DATE	CHECK	APPROV.
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WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BILL OF MATERIALS FOR 8" FMCT WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-621-2

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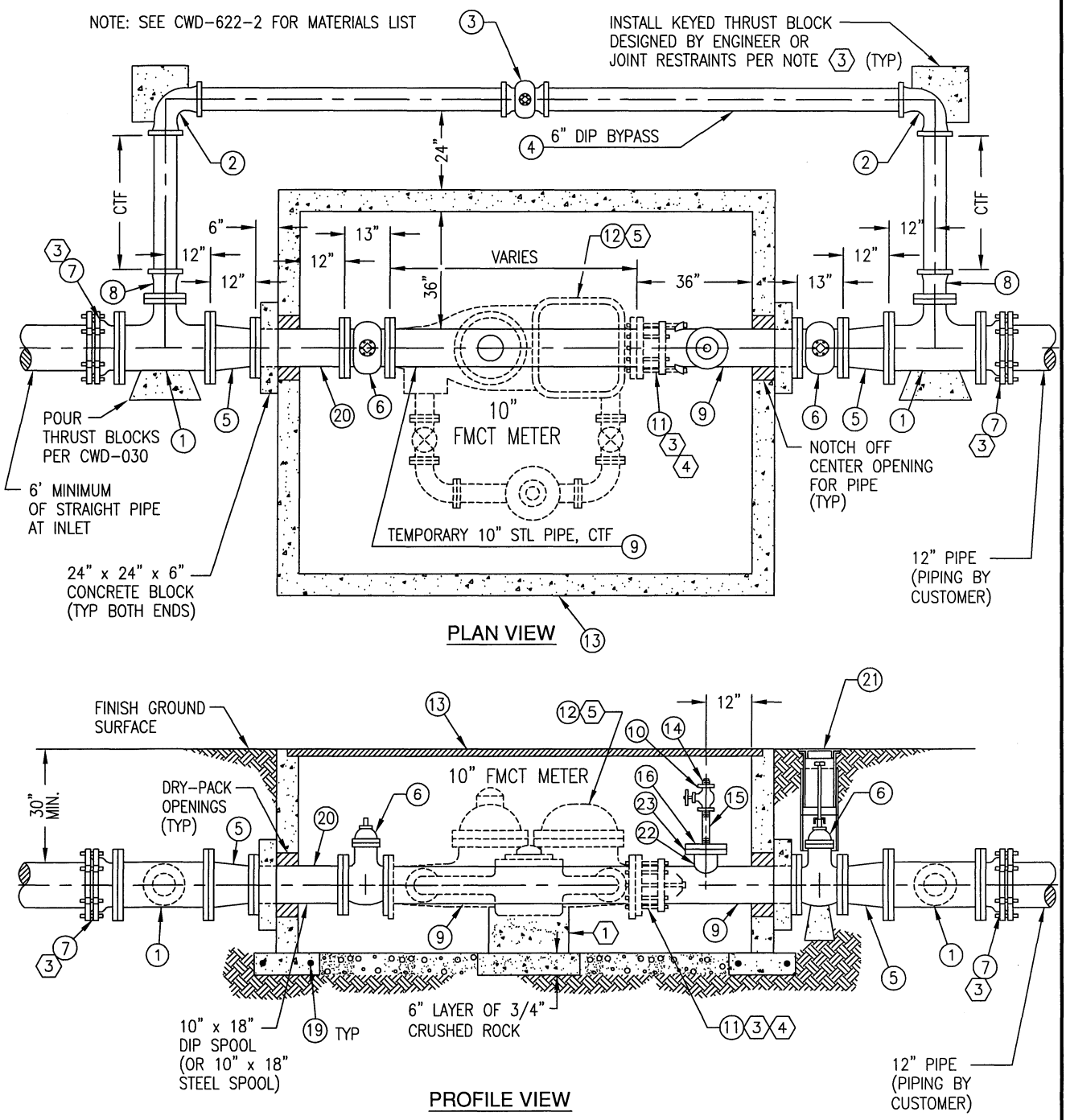
APPROV.	APPROV.	APPROV.	APPROV.



GENERAL NOTES:

1. SUPPORT METER ON CONCRETE PAD AND CONCRETE BLOCK.
2. ADJUST VAULT AND COVER TO MEET SIDEWALK AND CURB GRADE. PAINT PER CONSTRUCTION SPECIFICATION, SECTION 310.
3. PROVIDE JOINT RESTRAINTS, PER CONSTRUCTION SPECIFICATION.
4. CONTRACTOR SHALL INSTALL ALL PIPE, FITTINGS, AND MATERIALS BETWEEN THE TAPPING GATE AND "PIPING BY CUSTOMER", INCLUDING TEMPORARY FLANGE COUPLING CONNECTION AT INFLUENT VALVE.
5. CITY FORCES WILL FURNISH AND INSTALL 10" COMPOUND METER AND FAB. METER READING LID.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

10" DOMESTIC WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-622-1

BILL OF MATERIALS		
ITEM	QUANTITY	REFERENCE
(1) 12" x 6" TEE F/F*	2	
(2) 6" 90° ELL RT	2	
(3) 6" RW GATE VALVE B/B	1	
(4) 6" DI PIPE	20 FT±	
(5) 12" x 10" REDUCER F/F	2	
(6) 10" GATE VALVE F/F	2	
(7) 12" FLG X MJ ADAPTER	2	
(8) 6" F/B ADAPTER	2	
(9) 10" STL PIPE (SCHEDULE 40)	10 FT±	
(10) 2" BRONZE GATE VALVE	1	
(11) 10" FLANGE COUPLING ADAPTER	1	
(12) 10" COMPOUND METER	1	
(13) VAULT AND COVER	1	CWD-802
(14) 2" BRASS PLUG	3	
(15) 2" X 12" GALV NIPPLE	1	
(16) 6" BLIND FLG W/2" IPT TAP	1	
(17) CONCRETE PCC 480-6-2000	40 CU FT	
(18) 3/4" CRUSHED ROCK	40 CU FT	
(19) NO 4 REBAR	64 FT±	
(20) 10" x 18" DIP SPOOL, F/F	ALTERNATE FOR STEEL	
(21) 8" GATE BOX MATERIAL	1	
(22) 6" STL PIPE (SCHEDULE 40)	1	
(23) 6" WELD FLG	1	

* 12" x 12" TEE F/F WITH 12" x 6" REDUCER MAY BE USED INSTEAD OF 12" x 12" x 6" TEE.

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APPROV.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BILL OF MATERIALS FOR 10" COMPOUND WATER SERVICE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-622-2

0	1	2	3
DRAWN WEF	DRAWN	DRAWN	DRAWN
DATE 03-04	DATE	DATE	DATE
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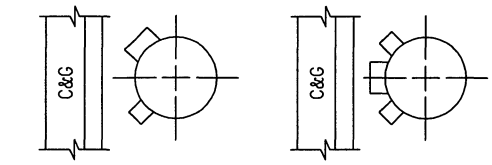
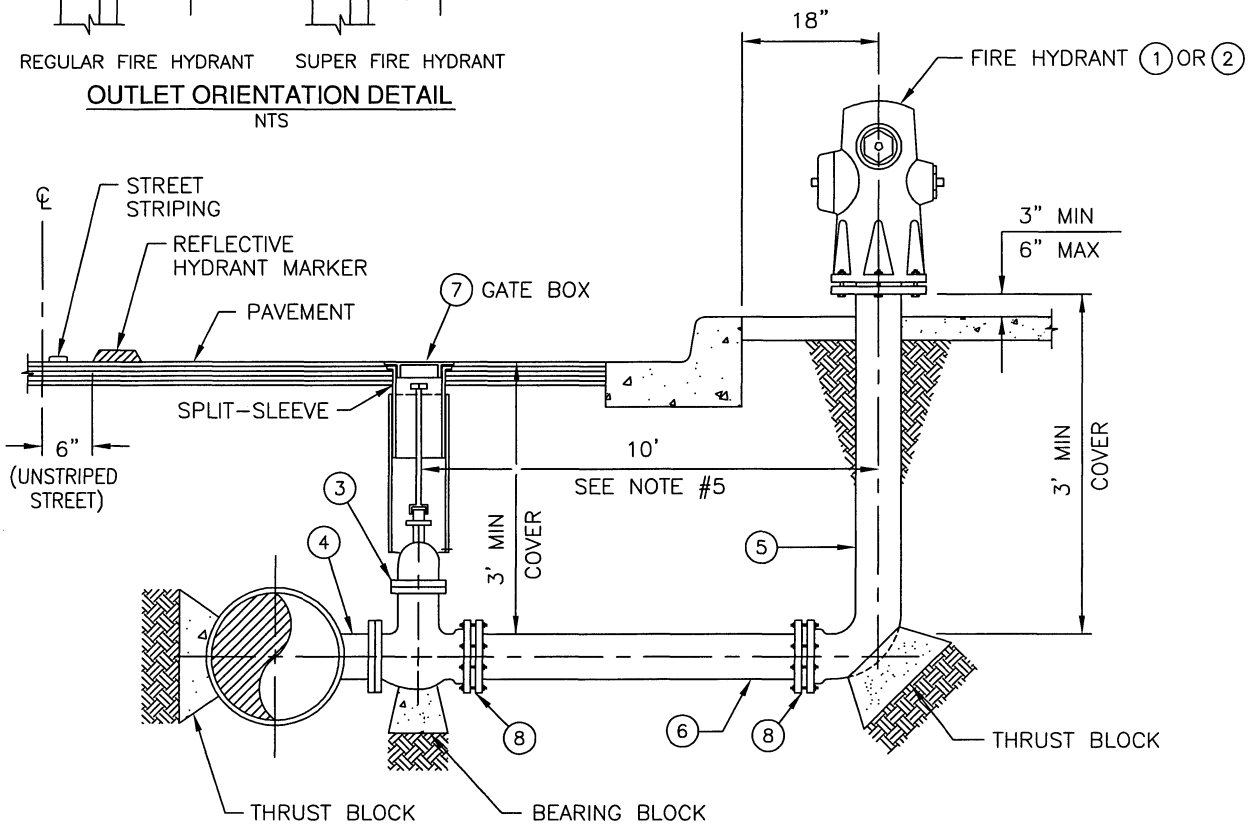
APPROV.	APPROV.	APPROV.	APPROV.



REGULAR FIRE HYDRANT SUPER FIRE HYDRANT

OUTLET ORIENTATION DETAIL
NTS



NOTES

1.) REGULAR OR SUPER HYDRANT IN ACCORDANCE WITH PLAN AND SPECIFICATIONS.

2.) BREAK-OFF BOLTS REQUIRED BETWEEN FIRE HYDRANT AND FLANGE IN ACCORDANCE WITH SPECIFICATIONS. INSTALL WITH NUT ON TOP.

3.) DI BURY AND FIRE HYDRANT FLANGE SHALL BE 6-HOLE.

4.) FIRE HYDRANT OUTLETS SHALL FACE STREET.

5.) FIRE HYDRANT VALVE SHALL BE A MINIMUM OF 10 FEET FROM HYDRANT.

6.) THRUST AND BEARING BLOCKS PER CWD-030

7.) FURNISH AND INSTALL A STIMSONITE MODEL 88AB TWO-WAY BLUE REFLECTIVE FIRE HYDRANT MARKER DIRECTLY OPPOSITE HYDRANT, LOCATE MARKER ON HYDRANT SIDE OF STREET CENTERLINE IN ACCORDANCE WITH THE ABOVE DETAIL, WITH REFLECTIVE SIDE FACING ONCOMING TRAFFIC, PROVIDE 2 - MARKERS FOR HYDRANTS INSTALLED AT INTERSECTIONS.

8.) ALL PIPE TO BE POLYETHENE-ENCASED PER SPECIFICATION SECTION 306.

9.) IF MAIN LINE MUST BE WET TAPPED, SEE CWD-504.

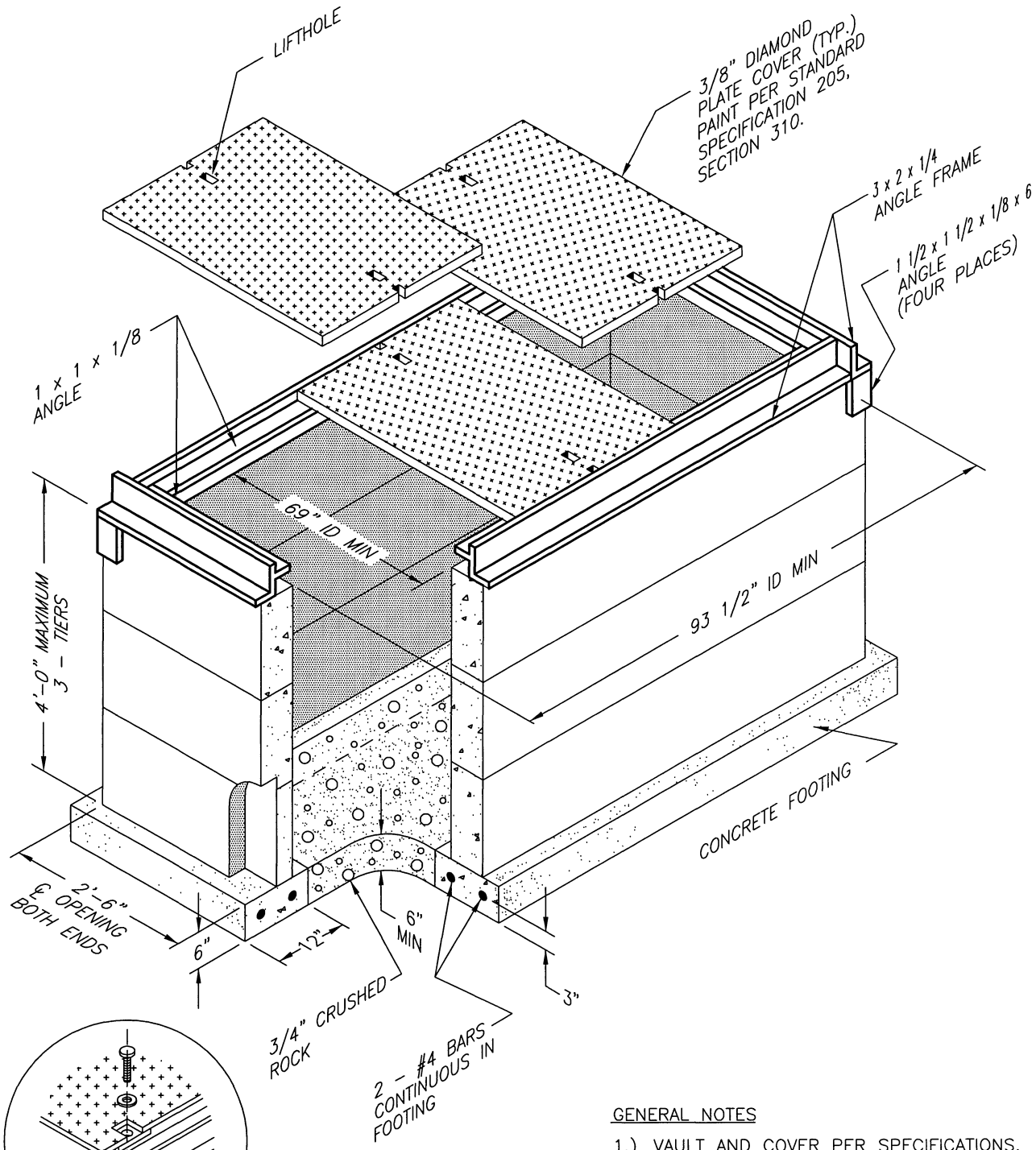
BILL OF MATERIALS

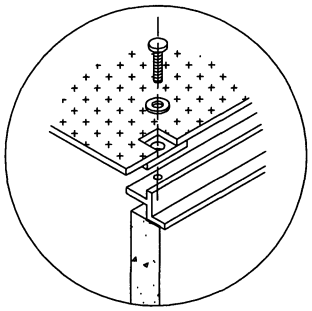
ITEM	QUANTITY	REFERENCE
(1) REGULAR FIRE HYDRANT OUTLETS: 1 - 2 1/2", 1 - 4"	1	
(2) SUPER FIRE HYDRANT OUTLETS: 2 - 2 1/2", 1 - 4"		
(3) 6" GATE VALVE, FLG/MJ, RW	1	CWD-500
(4) MAINLINE X 6" TEE	1	
(5) 6" DI BURY, FLG/MJ	1	
(6) 6" DI PIPE	1	
(7) 8" GATE BOX CAP, GALV SPLIT-SLEEVE, AND 12 GA STL PIPE	1	CWD-515
(8) 6" GRIP RING	2	

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

REGULAR AND SUPER FIRE HYDRANT DETAIL

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-700





DETAIL
COVER BOLT DOWN ASSEMBLY

GENERAL NOTES

1.) VAULT AND COVER PER SPECIFICATIONS.

2.) FOOTIING SHALL BE POURED AGAINST UNDISTURBED SOIL, PCC 560-C-3250.

3.) VAULT LOCATION TO BE APPROVED BY WATER DIVISION, PUBLIC UTILITIES.

4.) A JOINT SEALING COMPOUND SHALL BE USED AT ALL JOINTS

	APPROV.	CHECK	DATE	DRAWN
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3	APPROV.	CHECK	DATE	DRAWN

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

NON-TRAFFIC VAULT FOR 3" THRU 6" COMPOUND METERS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-800

	APPROV.	CHECK	DATE	DRAWN
3				
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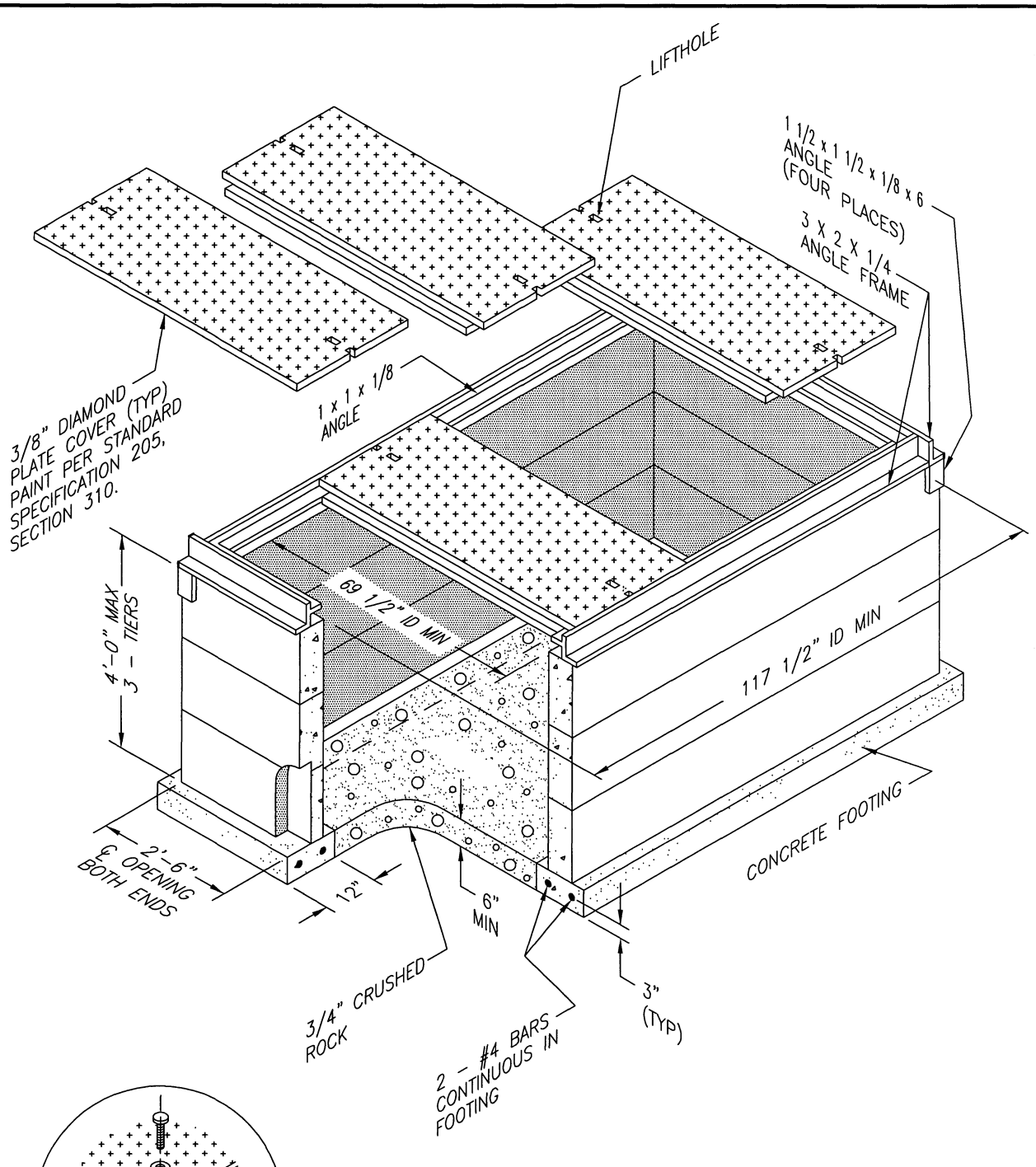
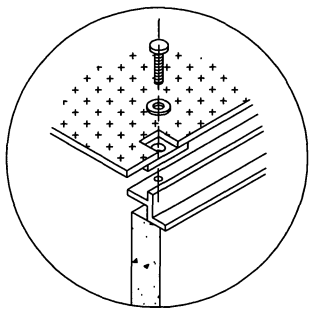
0		CHECK	DATE 03-04	DRAWN WEF





DETAIL
COVER BOLT DOWN ASSEMBLY

GENERAL NOTES

1.) VAULT AND COVER PER SPECIFICATIONS.

2.) FOOTIING SHALL BE POURED AGAINST UNDISTURBED SOIL, PCC 560-C-3250.

3.) VAULT LOCATION TO BE APPROVED BY WATER DIVISION, PUBLIC UTILITIES.

4.) A JOINT SEALING COMPOUND SHALL BE USED AT ALL JOINTS

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

NON-TRAFFIC VAULT FOR 8" COMPOUND METERS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-801

	DRAWN	DATE	CHECK	APPROV.
0	WEF	03-04		
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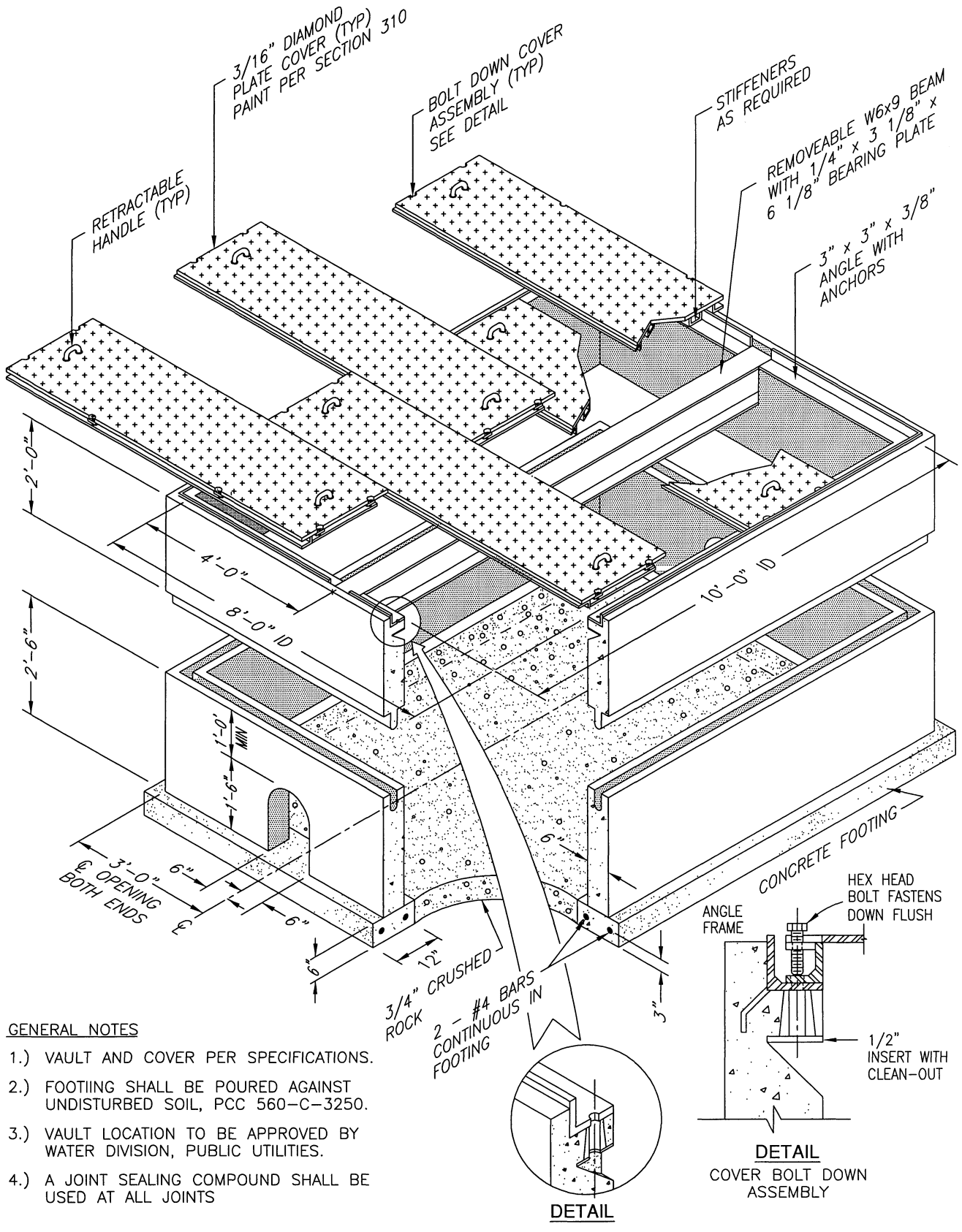


DETAIL

DETAIL
COVER BOLT DOWN ASSEMBLY

GENERAL NOTES

1.) VAULT AND COVER PER SPECIFICATIONS.

2.) FOOTIING SHALL BE POURED AGAINST UNDISTURBED SOIL, PCC 560-C-3250.

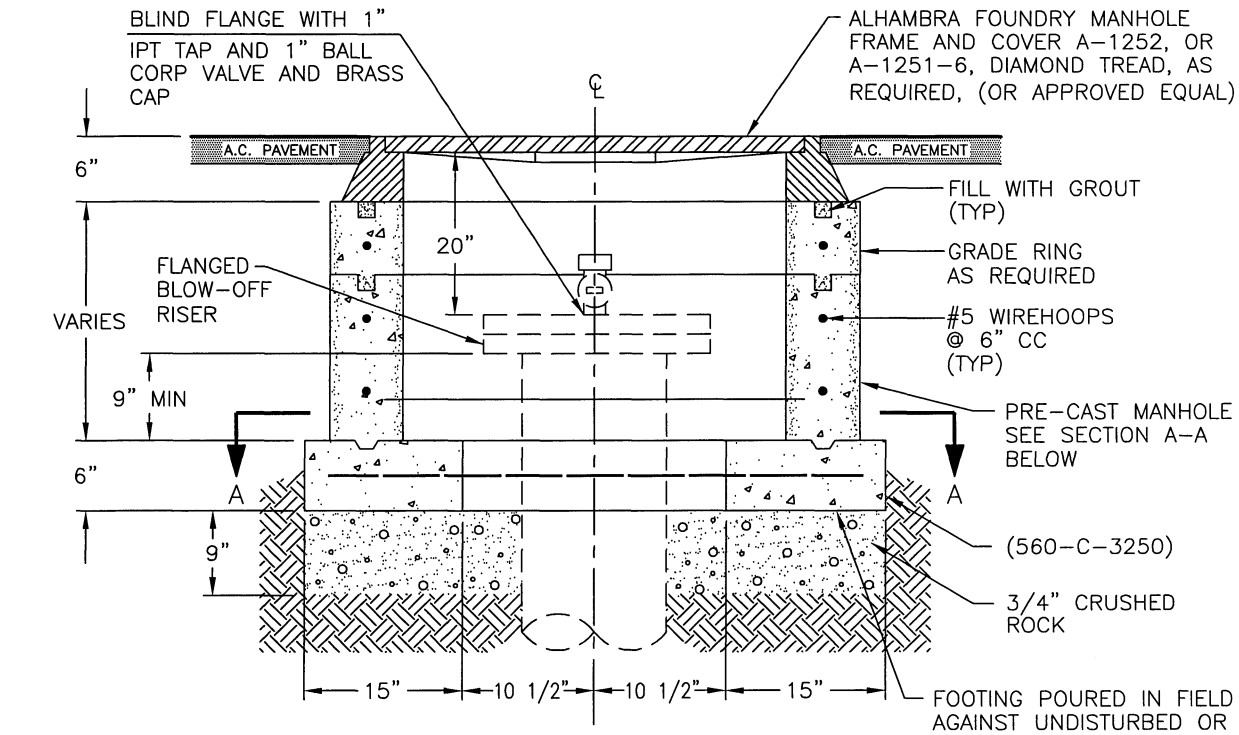
3.) VAULT LOCATION TO BE APPROVED BY WATER DIVISION, PUBLIC UTILITIES.

4.) A JOINT SEALING COMPOUND SHALL BE USED AT ALL JOINTS

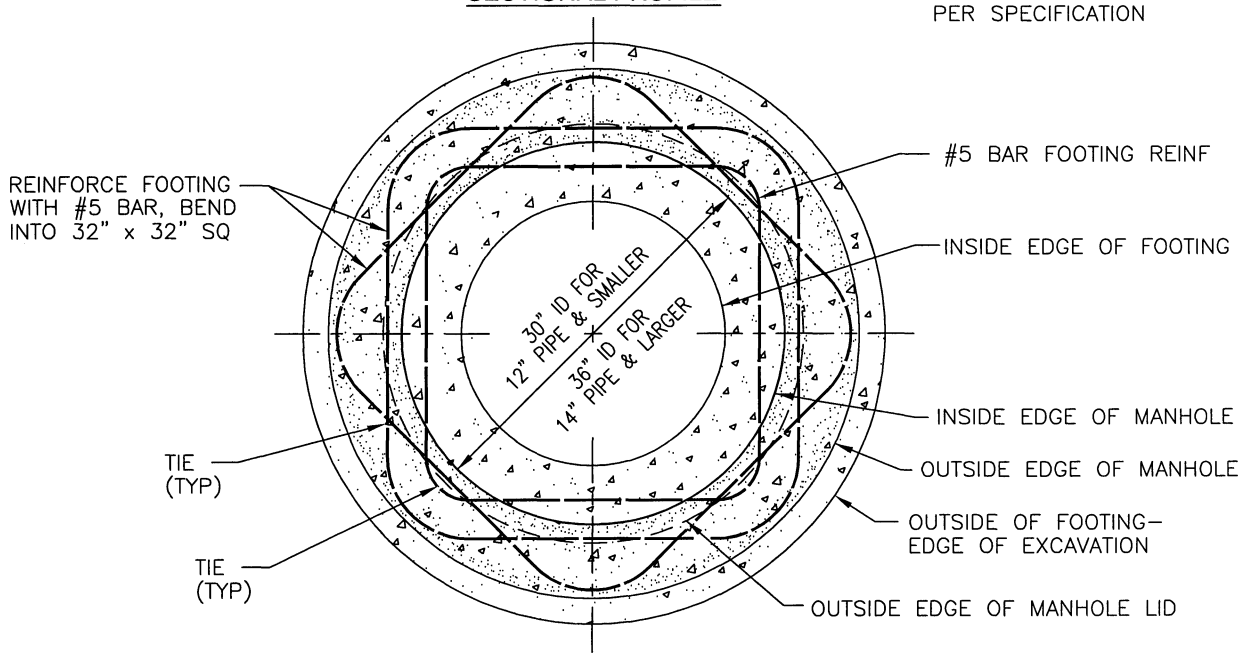
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

NON-TRAFFIC VAULT FOR 10" COMPOUND METERS

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-802



SECTIONAL PROFILE



SECTION A-A

PRE-CAST MANHOLE SECTION SPECIFICATIONS:

1) DESIGN LOADING H = 20 - S 16
2) CEMENT: TYPE II, ASTM C150, 3250 PSI
3) REINFORCEMENT: GRADE 40 OR GRADE 60 ASTM A615
4) COVER TO BE DIAMOND-TREAD FINISH, LETTERED "CWD"

0	1	2	3
DRAWN WEF	DRAWN	DRAWN	DRAWN
DATE 03-04	DATE	DATE	DATE
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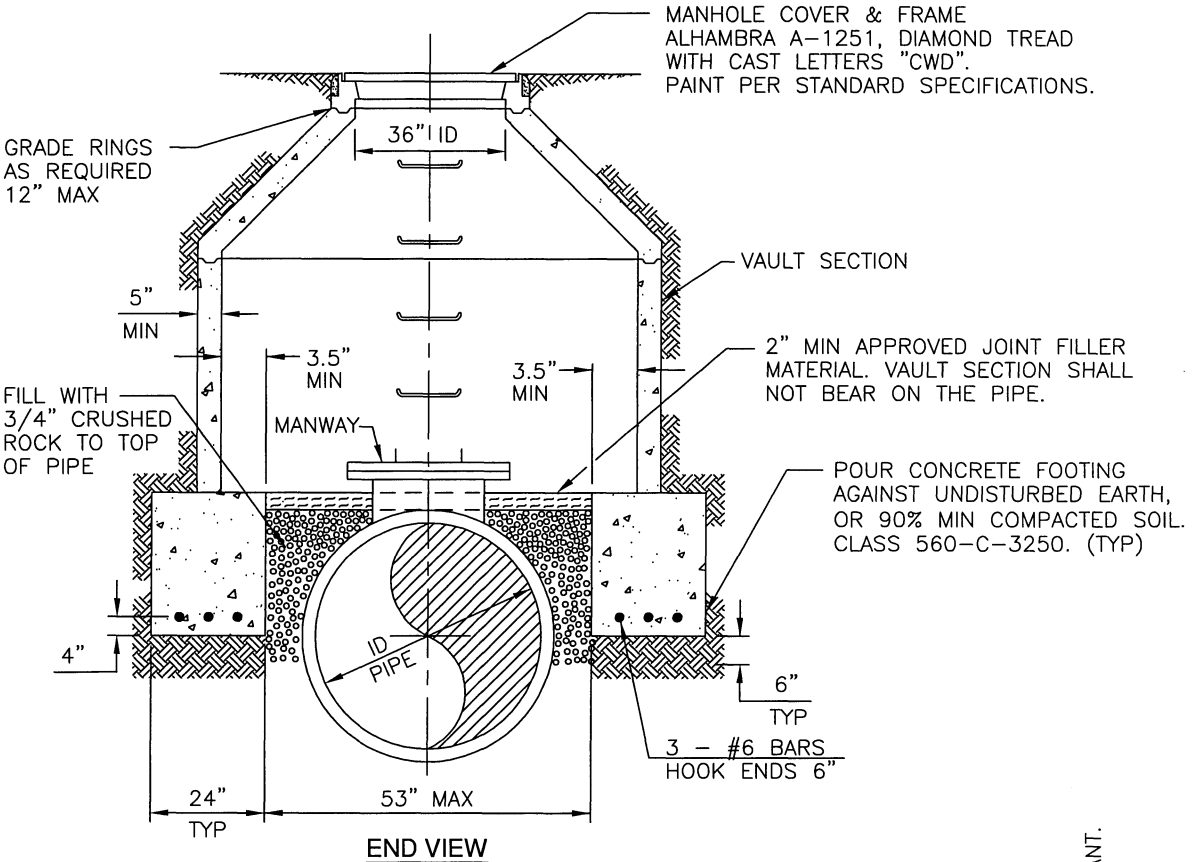
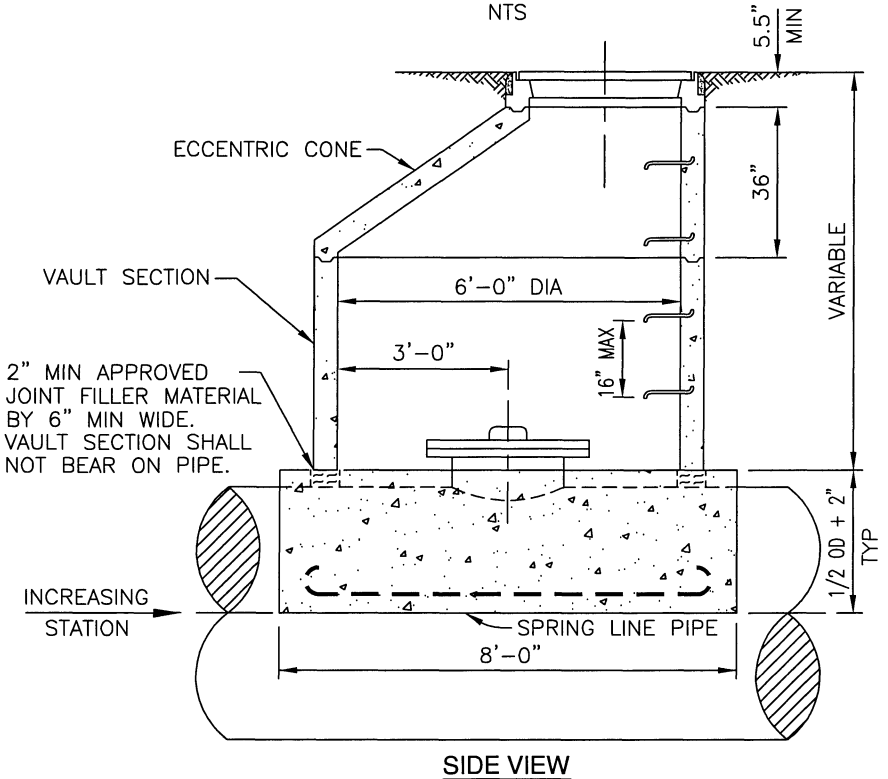
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

BLOW-OFF MANHOLE INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-811



END VIEW
NTS



SIDE VIEW
NTS

NOTES:

1.) STEPS SHALL BE 16" WIDE STIRRUP TYPE SAFETY STEPS CAST IN-PLACE AT TIME OF MANUFACTURE. STEPS SHALL BE PLACED AT A MAX. OF 16" CENTER TO CENTER. MATERIAL FOR STEPS SHALL BE 3/4" GALV. STEEL, ASTM A-124.

2.) WHEN MANHOLE IS IN PAVED AREA, MANHOLE FRAME SHALL BE SET AFTER ADJACENT PAVEMENT HAS BEEN PLACED. TOP SHALL BE FLUSH WITH PAVEMENT.

3.) ALL JOINTS SHALL BE SEALED WITH AN APPROVED JOINT SEALANT.

4.) VAULT SHALL BE DESIGNED FOR H-20, S-16 LOADING.

5.) LOCATION FOR MANHOLES OVER MANWAYS AS SHOWN ON THE PLAN AND PROFILE SHEETS.

	DRAWN	DATE	CHECK	APPROV.
0	WEF	03-04		
1				
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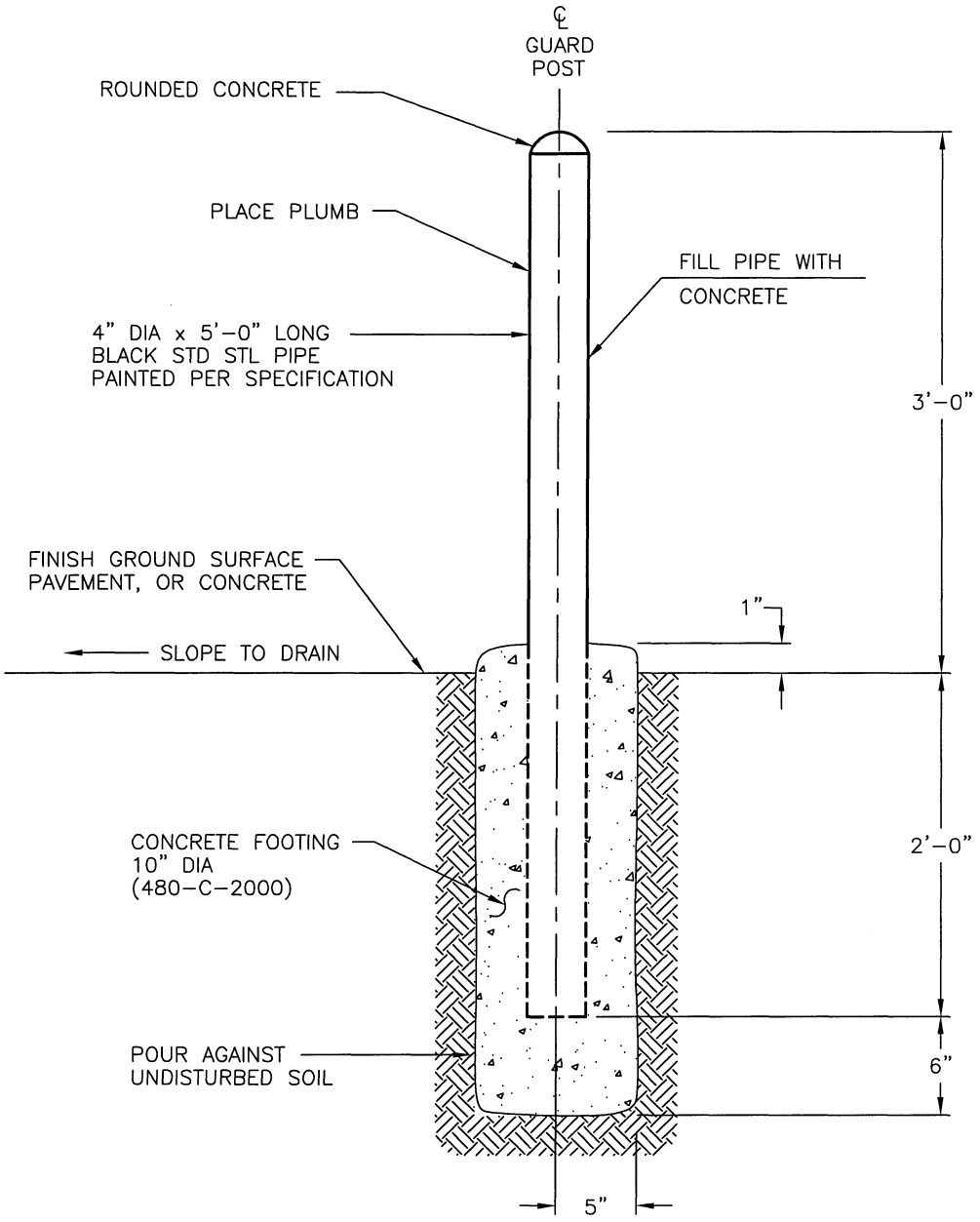
WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

MANHOLE DETAIL
48" MAX ID PIPE

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-816



SECTIONAL VIEW

NOTES:

1.) NUMBER AND POSITION OF GUARD POSTS AS SPECIFIED ON PLANS.

2.) REFER TO "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEC. 210 AND SEC. 310.

3	DRAWN	DATE	CHECK	APPROV.
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1	DRAWN	DATE	CHECK	APPROV.
0	DRAWN WEF	DATE 03-04	CHECK	APPROV.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

4" DIA. GUARD POST INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-900-A

	DRAWN	DATE	CHECK	APPROV.
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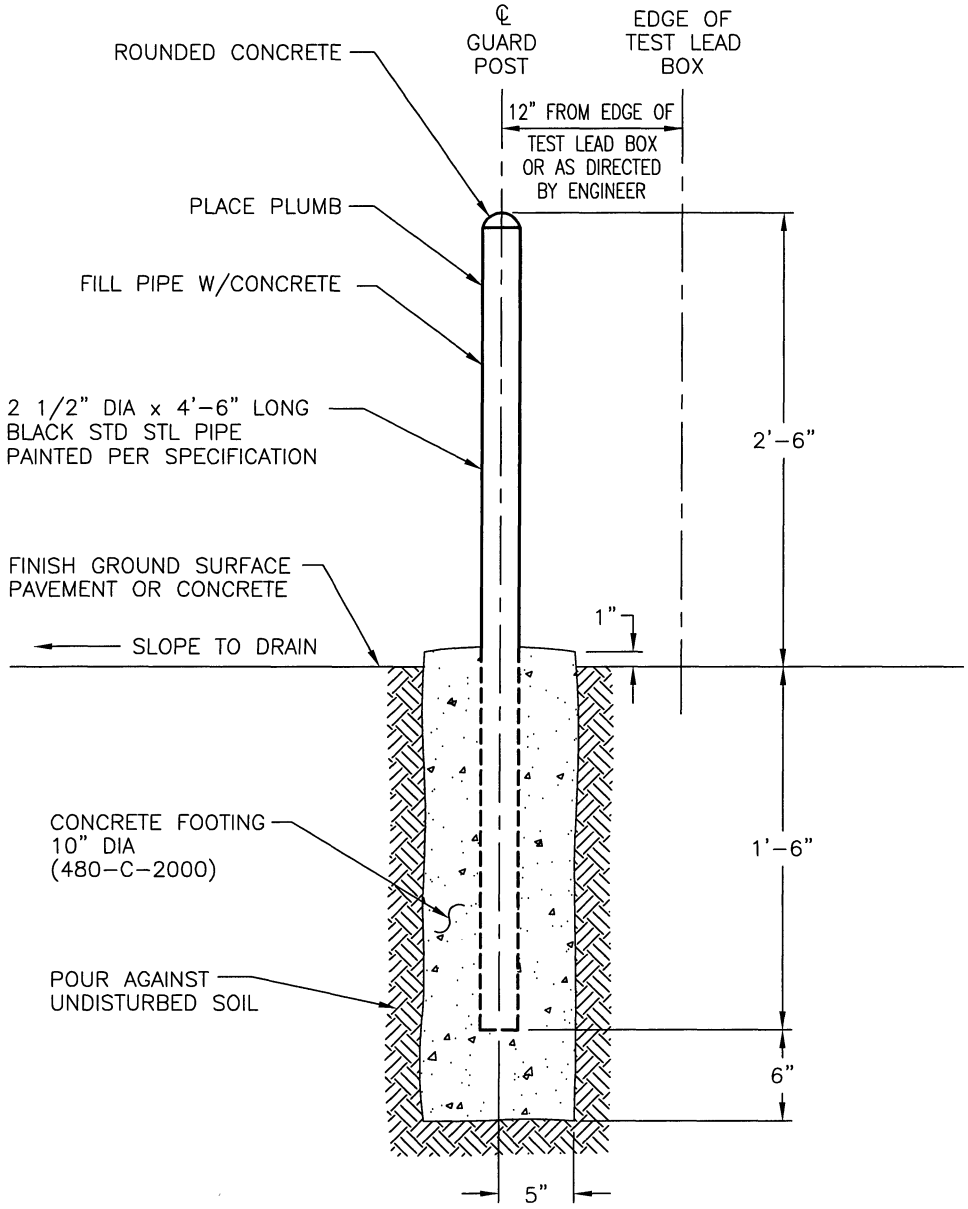

SECTIONAL VIEW

NOTES:

1.) NUMBER AND POSITION OF GUARD POSTS AS SPECIFIED ON PLANS.

2.) REFER TO "STANDARD SPECIFICATIONS PUBLIC WORKS CONSTRUCTION", SEC 210 AND 310.

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	2.5" DIA. GUARD POST INSTALLATION
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING	DATE: MAR 2004 — CWD-900-B

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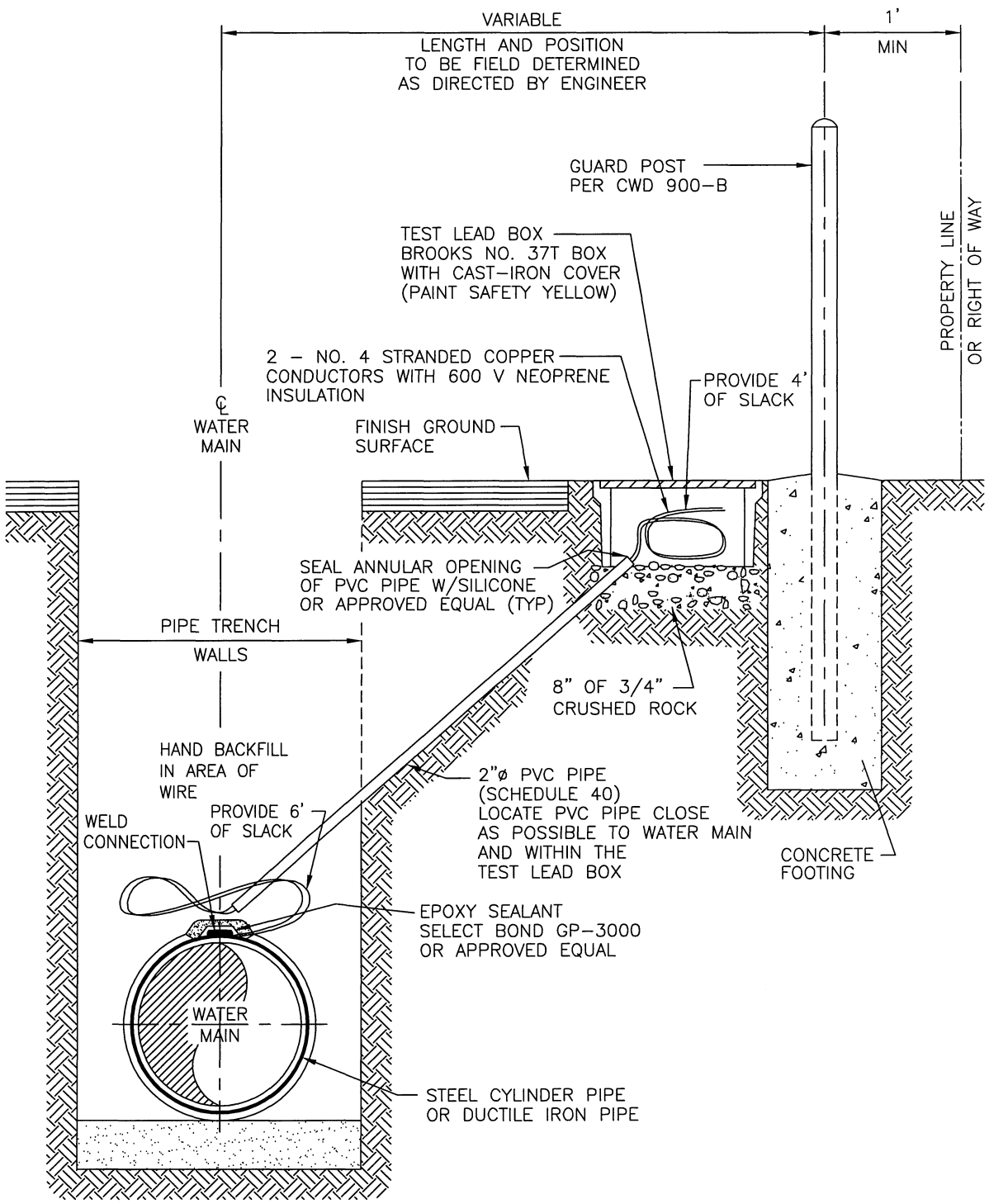


PROFILE VIEW

NOTES

1.) "CADWELD" TYPE HA-3 CONNECTION, CAH AA-IL, WITH F33 STANDARD CHARGE (STEEL PIPE); TYPE HB CONNECTION, CA HBA-16, XF-19 CHARGE (DUCTILE IRON PIPE); OR CITY APPROVED EQUAL.

2.) PREPARATION OF CONDUCTOR AND PIPE SURFACES SHALL BE MADE PER THE PUBLISHED INSTRUCTIONS OF THE CONNECTOR MANUFACTURER.

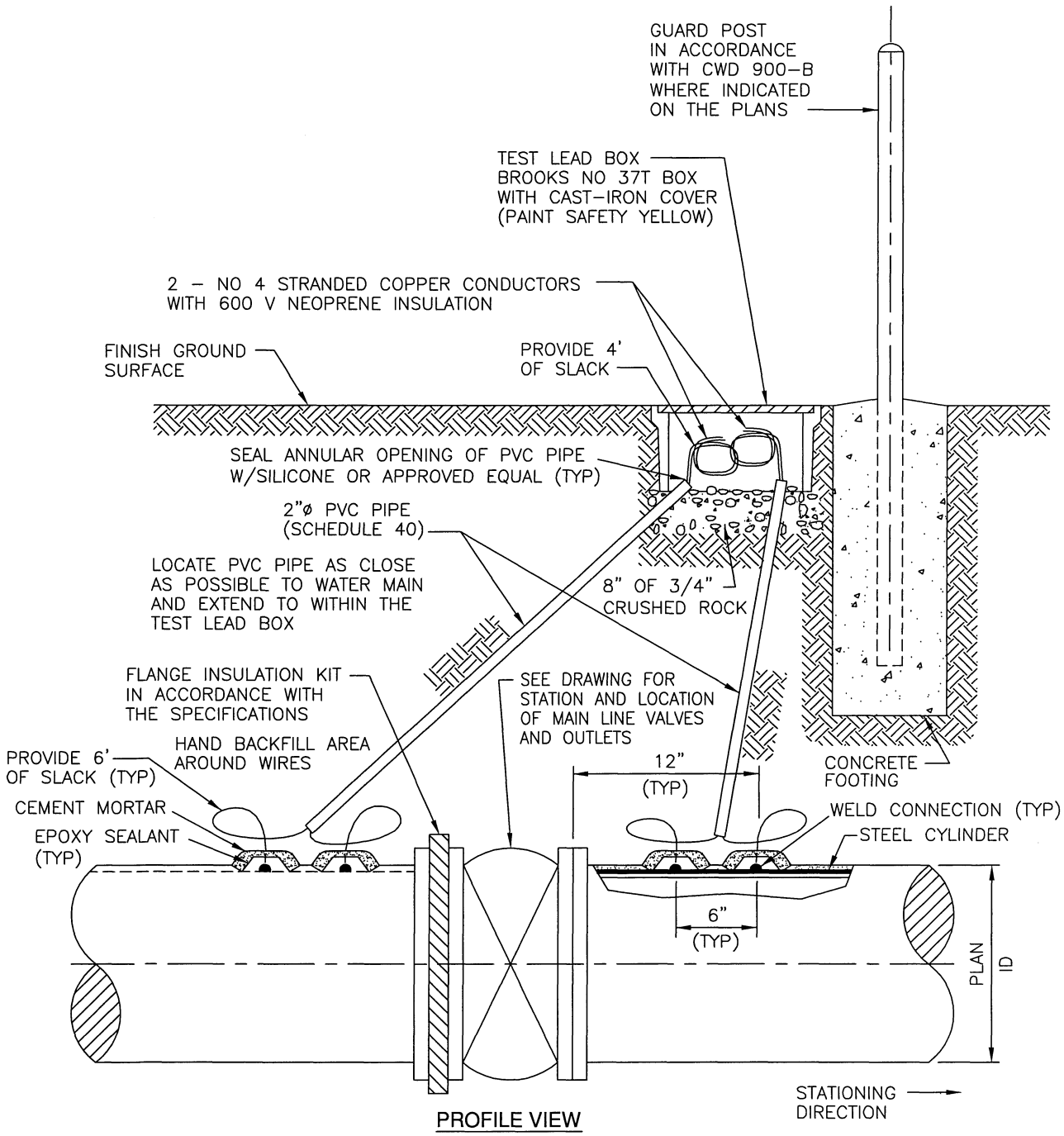
3.) SEE DRAWINGS FOR STATION AND LOCATION OF TEST LEAD CONNECTIONS.

4.) EPOXY SEALANT: MIX AND FIRMLY APPLY EPOXY PUTTY TO PROVIDE A WATER-TIGHT SEAL AT LEAST 1/4 INCH THICK OVER WELD AND BARE WIRE. OVERLAY WIRE INSULATION BY 1/2 INCH.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

TEST LEAD INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-922



PROFILE VIEW

NOTES

1.) FLANGE INSULATION GASKETS SHALL BE FULL-FACED, NEOPRENE-COATED FABRIC-REINFORCED PHENOLIC, 1/8 INCH THICK. A ONE-PIECE SLEEVE AND WASHER, SEPARATE PHENOLIC WASHER, AND TWO CADMIUM-PLATED STEEL WASHERS SHALL BE USED FOR EACH BOLT OR CAP SCREW.

2.) FLANGE KITS SHALL BE FURNISHED IN ACCORDANCE WITH THE SPECIFICATIONS.

3.) TEST LEAD CONNECTIONS AND LOCATIONS IN ACCORDANCE WITH CWD-922.

4.) TEST LEADS SHALL BE TAGGED AND/OR COLOR-CODED EAST/WEST OR NORTH/SOUTH OF VALVE.

5.) TEST LEAD INSULATION KIT SHALL BE STRIPPED BACK ONE INCH FROM ENDS.

6.) WHEN FLANGE KITS ARE SPECIFIED: SIZE_____ - 150# - TYPE EN-DW.

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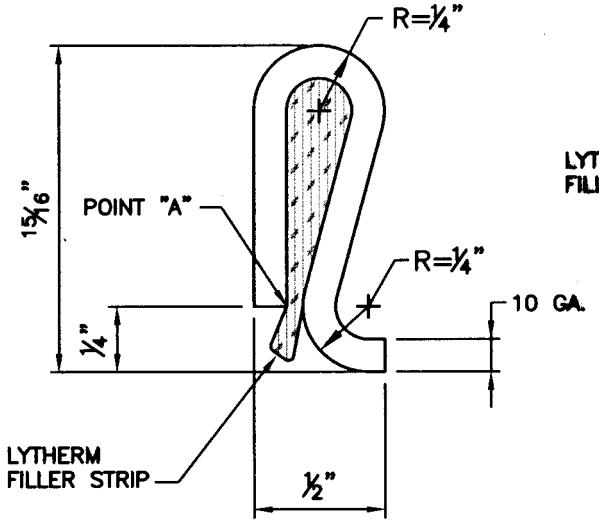
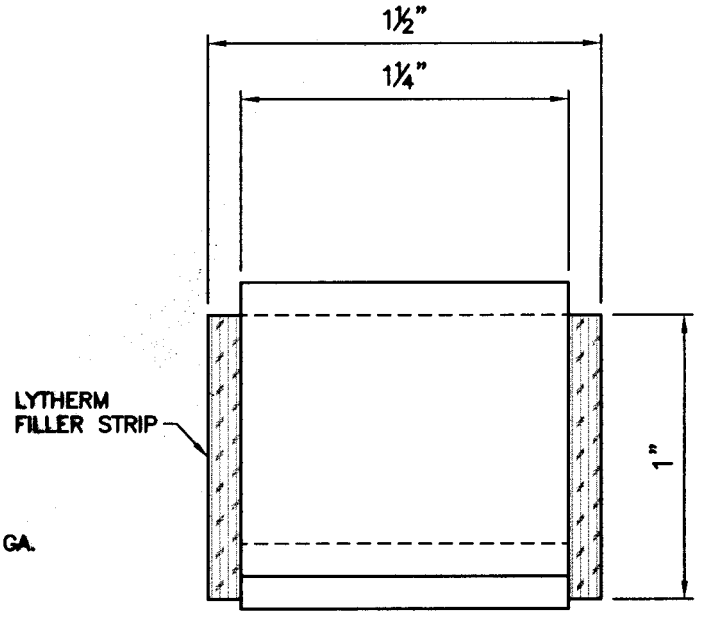
1				
0		CHECK	03-04	WEF

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

FLANGE INSULATION AND TEST LEAD INSTALLATION

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-923





NOTES:

1. STEEL BONDING CLIP SPECIFICATIONS:
   MATERIAL SPECIFICATION ASTM A356 COMMERCIAL QUALITY
   CUT LENGTH = 2½" + 1/16", WIDTH = 1¼" + 1/16".
2. LYTHERM FILLER STRIP DIMENSIONS TO BE 1"x1½"
   IN ORDER TO OVERLAP SIDES OF CLIP.
3. CRIMP BONDING CLIP OVER FILLER AT POINT "A" TO
   COMPRESS FILLER.

PERFORMANCE NOTE:

THE ADDED FLEXIBILITY OF THE BONDING CLIP (¾" + MOVEMENT TOLERANCE) SIGNIFICANTLY REDUCES THE CHANCES OF WELDS BREAKING, AS OPPOSED TO THE RIGID "S"-BAR.

PIPE SIZE	JUMPERS/JOINT
16" THRU 24"	2
24" THRU 54"	3

MILD STEEL JOINT BOND

WATER DISTRIBUTION & TRANSMISSION CONSTRUCTION METHODS	JOINT BOND DETAILS

RIVERSIDE PUBLIC UTILITIES DEPT. STANDARD	DATE: FEB 2005	CWD-924

	APPROV.	CHECK	DATE	DRAWN
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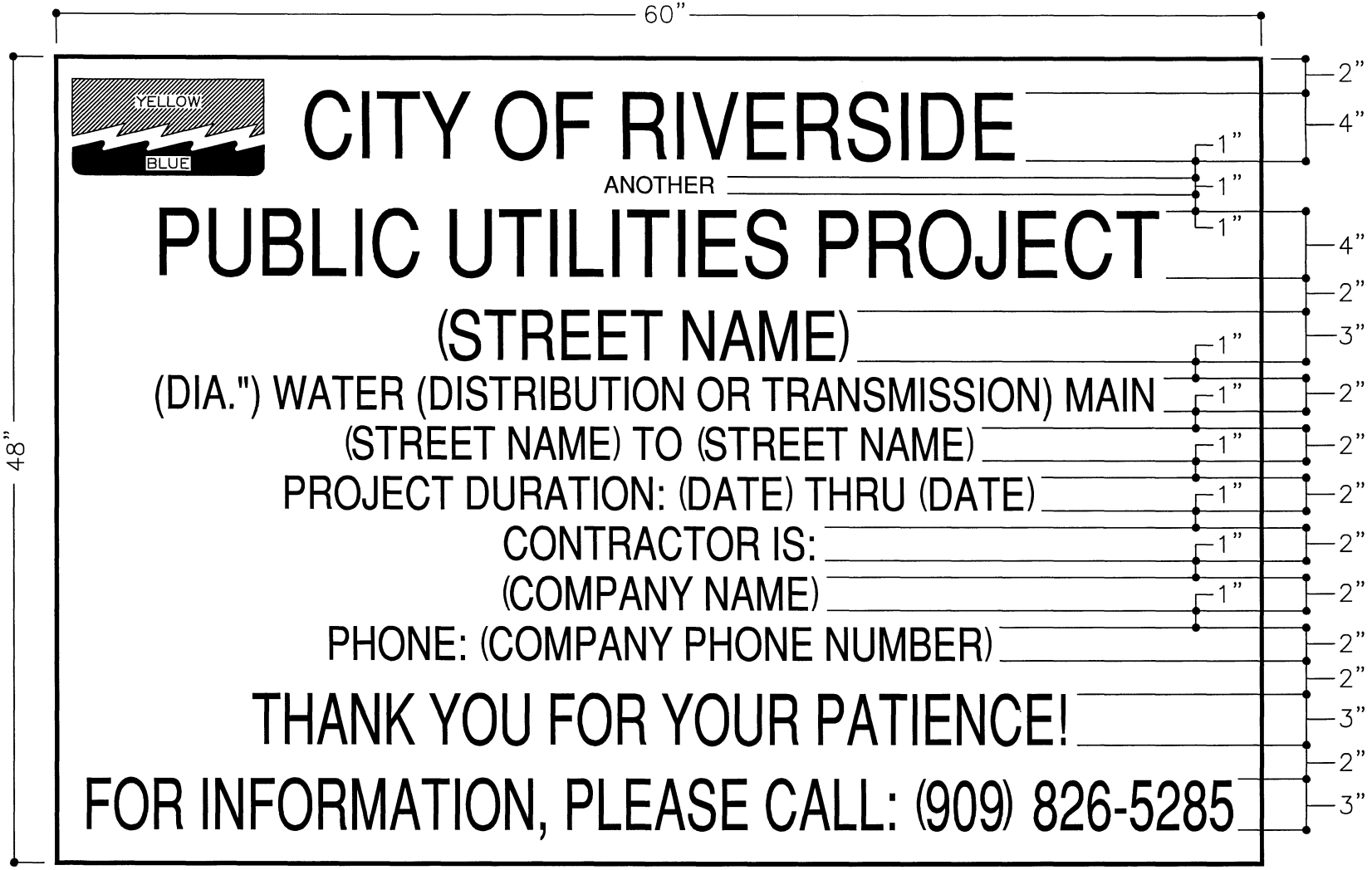
1				
0		CHECK	DATE 2-05	DRAWN VSV

0	DRAWN	DATE	CHECK	APPROV.	1	DRAWN	DATE	CHECK	APPROV.	2	DRAWN	DATE	CHECK	APPROV.	3	DRAWN	DATE	CHECK	APPROV.
	WEF	03-04																	



NOTIFICATION SIGN NOTES:

1). SIGN DIMENSIONS ARE TO BE 48" HIGH X 60" WIDE. DIMENSION LETTERS AS SHOWN ABOVE WITH CENTERED TEXT.

2). SIGN SHALL BE BLUE LETTERS ON WHITE BACKGROUND WITH RPU LOGO IN YELLOW AND BLUE ON WHITE BACKGROUND.

3). SIGNS SHALL BE POSTED A MINIMUM OF ONE WEEK PRIOR TO CONSTRUCTION.

4). SIGN SHALL BE POSTED AT EACH END OF THE PROJECT AND LOCATIONS TO BE APPROVED BY THE ENGINEER PRIOR TO ERECTING THE SIGNS.

5). SEE CWD-960-2 FOR CONSTRUCTION OF SIGN.

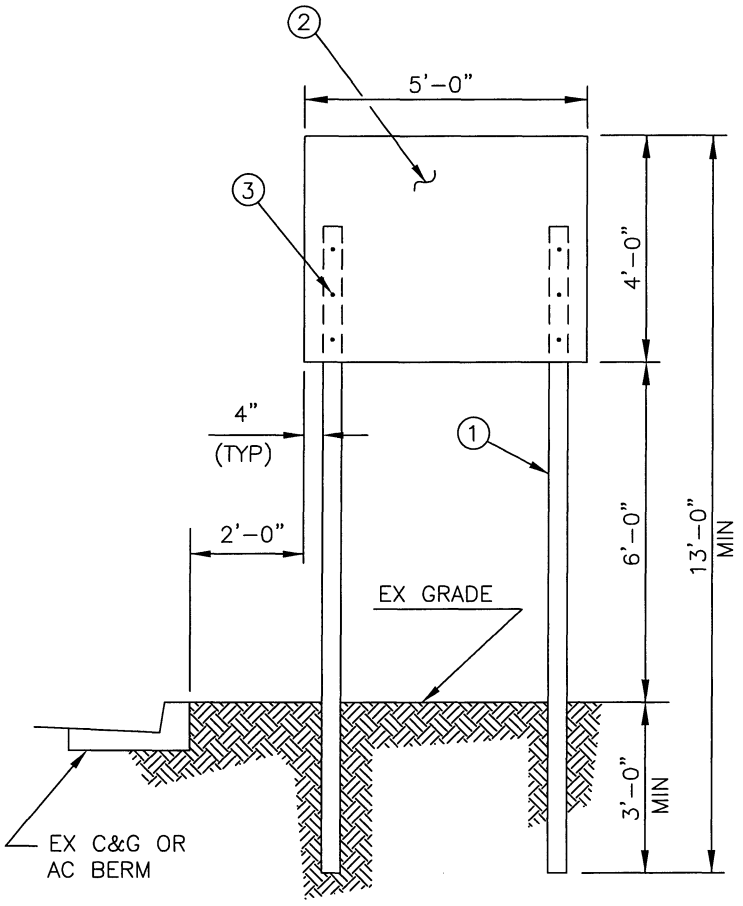
CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

NOTIFICATION SIGN

DATE: MAR 2004

CWD-960-1



CONSTRUCTION NOTES:

① 2 – DOUGLAS FIR CONSTRUCTION GRADE 4" X 4" POST.

② 3/4" THICK PLYWOOD.

③ FASTEN PLYWOOD SIGN TO POST W/6 – 5"± CARRIAGE BOLTS W/NUTS, FLAT WASHERS, AND JAM NUTS.

NOTES:

1) EXACT LOCATION OF SIGN TO BE DETERMINED BY ENGINEER WITH APPROVAL BY CITY PUBLIC UTILITIES DEPARTMENT.

0	DRAWN WEF	DATE 03-04	CHECK
1	DRAWN	DATE	CHECK
2	DRAWN	DATE	CHECK
3	DRAWN	DATE	CHECK

APPROV. APPROV. APPROV. APPROV.

WATER
DISTRIBUTION & TRANSMISSION
CONSTRUCTION METHODS

NOTIFICATION SIGN

CITY OF RIVERSIDE PUBLIC UTILITIES STANDARD DRAWING | DATE: MAR 2004 | CWD-960-2